A. M. D. G.

Loyola College

General Prospectus
1953 - 1954

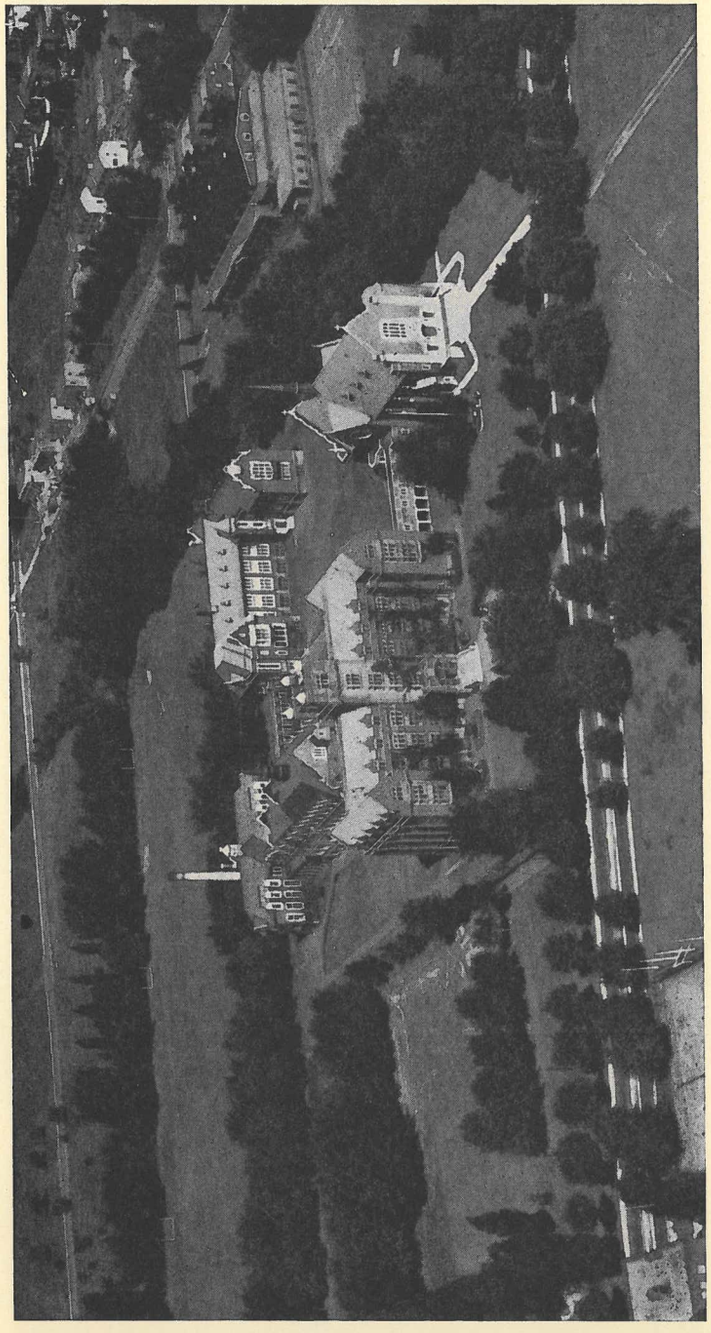
SHERBROOKE STREET WEST
MONTREAL, CANADA

A. M. D. G.

Loyola College

General Prospectus
1953 - 1954

Loyola College also conducts a High School department for resident and non-resident students, as well as a Preparatory Class for Entrance to High School.
Ask for High School Prospectus.



Associated Screen News Ltd.

Stadium
Chapel
Junior Building
Refectory Building
New Central Building
Administration Building

CLASSES
WILL BE RESUMED ON
MONDAY, SEPTEMBER 21st
FOR FRESHMEN
THURSDAY, SEPTEMBER 24th
FOR 2nd, 3rd, 4th YEAR STUDENTS

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ACADEMIC CALENDAR
1953 - 1954

Saturday, Aug. 1.....Last day for notification of return of registered students.

Saturday, Aug. 15.....Last day for applications for Supplemental examinations.

Wednesday, Sept. 16..Supplemental examinations begin.

Monday, Sept. 21.....Lectures begin for Freshman students.

Wednesday, Sept. 23..Registration for Second, Third and Fourth Year students.

Thursday, Sept. 24....9.00 A.M.—Mass and Sermon in the College Chapel.

10.00 A.M.—The Rector's address to the student body in the College Auditorium.

11.00 A.M.—Regular lectures for all students.

THANKSGIVING DAY. Full holiday (date to be announced).

Thursday, Nov. 12....9.00 A.M.—Solemn Anniversary Mass for deceased Masters and Students.

Monday, Nov. 16.....Mid-semester tests in all Faculties.

Tuesday, Dec. 8.....Feast of the IMMACULATE CONCEPTION. Holy Day of Obligation.

Tuesday, Dec. 22.....Last day before Christmas vacation.

Thursday, Jan. 7.....Lectures resumed in all Faculties.

Thursday, Jan. 14.....Mid-year examinations and tests for Science and Commerce students.

Monday, Jan. 25.....FATHER RECTOR'S HOLIDAY.

Tuesday, Jan. 26.....Beginning of Second Term.

Tuesday, March 2.....SHROVE TUESDAY. Full Holiday.

Monday, March 8.....PHILOSOPHERS' HOLIDAY.

Friday, April 9.....Last day of lectures for Third and Fourth Year Engineers.

Wednesday, April 14..Last day before Easter recess.

Tuesday, April 20.....Lectures resumed.

Friday, April 30.....Last day of lectures.

Monday, May 3.....Final examinations begin.

Monday, May 31.....CONVOCATION.

Board of Trustees

REV. JOHN F. MCCAFFREY, S.J .....*President*
REV. CHRISTOPHER KEENAN, S.J.....*Secretary-Treasurer*
REV. HENRY SMEATON, S.J.
REV. KEVIN SCOTT, S.J.
REV. HUGH MACPHEE, S.J.

—

JOHN T. HACKETT, Q.C.
Legal Adviser

Officers of Administration

REV. JOHN F. MCCAFFREY, S.J.,
Rector.
REV. J. E. HEALEY, S.J.,
Dean of the Faculties of Arts and Commerce.
REV. HUGH MACPHEE, S.J.,
Dean of the Faculty of Science and Engineering.
REV. F. NOLL, S.J.,
Librarian.
REV. THOMAS MOYLAN, S.J.,
Prefect of Discipline.
REV. R. DEVLIN, S.J.,
Student Counsellor.
REV. CHARLES KELLY, S.J.,
Procurator.
MISS EILEEN GIBBONS,
Registrar.
MR. F. STANLEY JOHNSON,
Bursar.

Faculty
College Department

MR. MURRAY BALLANTYNE, M.A. (McGill),
History.
MR. LAWRENCE BESSNER, C.A.,
Accounting.
MR. JOHN BUELL, B.A.,
English.
REV. W. D. CONNOR, S.J.,
Chemistry.
H. C. COOKE, Ph.D.,
Geology.
REV. F. DEVINE, S J.,
French.
REV. S. DRUMMOND, S.J.,
Biology.
REV. JOHN FILION, S.J.,
Theology.
REV. A. GRAHAM, S.J.,
Chemistry.
MR. F. GUADAGNI, B. Eng.,
Engineering.
MR. F. HAYES, B.Sc. (Econ.), London,
Economics.

Faculty - *Cont.*

REV. E. HEALEY, S.J.
History.

MR. JAMES HEMENS, B.A., B.C.L.,
Commercial Law.

DR. WALTER HITSCHFELD,
Physics.

REV. C. KANAVY, S.J.,
Philosophy.

REV. G. MACGUIGAN, S.J.,
English.

REV. RONALD MACKINNON, S.J.,
Sup. of Sc. Laboratories.

MR. AUGUSTIN MACPHEE, B.A.,
Mathematics.

REV. H. MACPHEE, S.J.,
Physics, Mathematics.

REV. J. MCDONNELL, S.J.,
Chemistry.

MR. JAMES MCMAHON, C.A.,
Accounting.

MR. D. MCNAMEE, C.A.,
Accounting.

REV. T. MOYLAN, S.J.,
Philosophy.

REV. E. O'CONNOR, S.J.,
Mathematics.

MR. B. O'KELLY, S.J.,
English.

MR. H. J. PEPPIATT, M.A.,
Physics.

REV. H. PHELAN, S.J.,
Ethics, Sociology.

DR. SCIPIO DEL CAMPO,
Economics.

REV. HENRY SMEATON, S.J.,
Theology.

REV. E. SMITH, S.J.,
Latin, Spanish, Greek.

REV. L. STANFORD, S.J.,
Philosophy, Theology.

REV. H. WARDELL, S.J.,
Mech. Drawing.

DR. C. A. WINKLER, O.B.E., D. PHIL. (Oxon), F.R.S.C.
Thermodynamics.

MR. WILLIAM ORBAN, B.Sc. (P.E.),
Athletic Director.

MAJOR NORMAN DANN,
C.O. Loyola Contingent C.O.T.C.

MAJOR R. HARAN,
Res. Staff Off., C.O.T.C.

GENERAL INFORMATION

Status

Loyola College, conducted by the Fathers of the Society of Jesus of the Canadian Province, was incorporated by an act of the Quebec Legislature on the second of February, 1899.

By the ecclesiastical and educational authorities of the Province, the new College was regarded as an off-shoot or, as they termed it, an extension of St. Mary's College of Montreal (founded by the Jesuit Fathers in 1847—a successor to the historic *College of Quebec* founded in 1663), and as such, was made to share in the privileges granted to that institution by the Holy See in its Constitution "Jamdudum".

In consequence of this arrangement, Loyola College, while profiting by a very close association with Laval University, Quebec, and granting Laval degrees to Loyola graduates, was assured of complete autonomy and independence in the shaping of its curriculum, and in the conducting of its examinations.

A similar arrangement was made with the University of Montreal when it became autonomous. Through a special arrangement with the University of Montreal, this University grants the B.Sc. degrees to the students who have successfully completed a Science or an Engineering course. The curriculum, examinations, etc., of these courses are under the control of the Faculty of Science of the University of Montreal.

History

In the autumn of 1896 Loyola College began its existence under the direction of the Reverend Gregory O'Bryan, S.J. Its first home was a building, since torn down, situated at the south-east corner of St. Catherine and Bleury Streets.

Before the end of the second year a fire necessitated the removal of the College, and a property was purchased at 68 Drummond Street, which had been a Protestant High School and which, considerably enlarged, was to house the staff and the students for nearly twenty years. During the war, this property was the Prince of Wales Military Hospital.

It may be said, however, that Loyola College had its beginning in the Separate Course inaugurated in September, 1889, for English-speaking students at St. Mary's College, and the students of these classes have always been looked upon as the pioneer students of Loyola.

Within a very few years of its foundation it was felt that a College which received so many boarding-students required ample grounds, and different efforts were made to secure a large piece of property. Finally, Father William Doherty, S.J., secured, in what was then the Municipality of Notre Dame de Grace, a farm of approximately 50 acres. The rapid development of the city westward soon brought this hitherto inaccessible piece of property within easy reach of all parts of the city by an excellent electric tramway service.

In the late Autumn of 1913 the first excavations of the Loyola College buildings were begun, and in the following year building operations were

under way. In the summer of 1916 the College was definitely removed from Drummond Street to its present quarters.

Location

Loyola College is situated on Sherbrooke Street West, at the extreme western end of the city, in one of the choicest suburban districts, quite near the Canadian Pacific Railway station of Montreal West. Though enjoying the advantages of an excellent car service, placing the College within half an hour of the heart of the city, the College yet enjoys all the advantages of the country in unclouded air and open spaces. The location is very salubrious. It is 180 feet above the St. Lawrence, on ground that on one side slopes up to Mount Royal and on the other three sides gradually falls away towards the Lachine rapids of the St. Lawrence River, towards Lake St. Louis, towards the Lake of Two Mountains and the Ottawa River. The prevailing wind blowing across farmlands and orchards, and uncontaminated by smoke, comes directly down the valleys of the St. Lawrence and of the Ottawa, which unite just above Montreal.

Buildings and Grounds

In design the new buildings are of the Tudor and early Renaissance type of English Collegiate Gothic. Six buildings are now erected and when the projected buildings are all complete they will undoubtedly rank among the most beautiful in the country. The buildings are absolutely fire-proof. The ventilating system, sanitary arrangements, and the kitchens and dependencies embody all the latest improvements.

The college grounds cover about fifty acres. A spacious playing field measuring approximately 270 yards by 150 yards is a distinctive feature of the College campus. There is, besides, ample space devoted to tennis-courts and to playgrounds for the shorter recreations.

The Stadium or indoor hockey rink is a handsome, substantial building, with a large ice-surface, convenient dressing-rooms, shower-baths, etc.

SYSTEM OF EDUCATION

The educational system is substantially that of all Jesuit Colleges which is clearly set forth in the "Ratio Studiorum". Education in its completest sense, as understood by the Fathers of the Society, is the full and harmonious development of all the faculties. It is not, therefore, mere instruction, nor communication of knowledge. In fact, the acquisition of knowledge, though it necessarily accompanies any right system, is a secondary result of education. Learning is the instrument of education not the outcome. Its outcome is culture, mental and moral, and such studies, languages or sciences, are chosen as will most effectively further this end.

In the Arts Course the preference is given to the Classics and Philosophy over all other subjects, as the fittest instruments to promote this intellectual and moral growth. But this preference is not exclusive. The importance of mathematics and the natural sciences, as instruments of education, has not been under-estimated.

Likewise in the Science, Engineering, and Commerce Courses, the student, while receiving a training in his chosen branch of studies, is obliged to follow courses in Theology, English, French and Philosophy.

The Commerce Course

To meet a long felt need, a four-year course leading to the Degree of Bachelor of Commerce was established at Loyola in September, 1948. Its purpose is both formative and utilitarian and it is designed to give the student a solid grounding in the fundamental principles which govern the economic life of modern society. It envisages both those who look forward to a career in business or finance and have at their disposal only a limited time for College preparation as well as those who intend to go on for graduate work in Economics or Business Administration. In addition to the standard subjects taught in the Commerce Departments of Canadian and American Universities, two years of Philosophy and four years of Theology are compulsory.

MORAL AND RELIGIOUS TRAINING

The College authorities are convinced that without religion there can be no perfect education in the true sense of the word, that is to say, no complete and harmonious development of the intellect and the heart of man. They hold, furthermore, that religious truth, being definite and certain like any other truth, is as susceptible of being taught as languages or mathematics. Hence religion is an integral part of the curriculum. The students are required to comply with their religious obligations regularly, and to make annually a spiritual retreat of three days. Societies and other associations are also formed for the fostering of piety.

PHYSICAL EDUCATION

In order that the physical as well as the moral and intellectual faculties of a student be developed, a Physical Education course is offered for students of Freshman Year. This course of one hour per week for two semesters covers the fundamentals of tennis, tumbling (gymnastics and pyramid building), boxing, wrestling, football, basketball and volleyball.

To further the aim of this course students are encouraged to take part in intramural sports as well. Students must be provided with proper gym attire which includes running shoes, gym pants and shirts

This course is conducted by Mr William Orban, B.Sc. (P.E.), College Athletic Director.

EQUIPMENT

Library

The *College Library* comprises about twenty-six thousand volumes; of these more than six thousand volumes are in the College Reading Room where, also, the most useful current magazines are always on file.

A growing record collection is available for student use in the Music Room attached to the Library.

Science Department

Two large laboratories are available for Physics, Elementary and Advanced, with, in addition, two smaller laboratories for special experiments in Light and Electricity.

The Chemistry facilities offer adequate space for under-graduate courses in general, analytical, organic and physical chemistry.

Biology affords all the necessary facilities for pre-medical work.

The College also possesses a Drafting-room and a Geology Lab.

Needs of the College

Although the College has received substantial financial aid from the Campaign Funds of 1938 and 1946, the present equipment of buildings and educational apparatus has been acquired by incurring a considerable debt.

It is of the utmost importance that this debt should be rapidly diminished and that the College should be placed in a position to erect the buildings originally planned and to undertake other greatly needed improvements.

For these purposes, and for the general development of the College, the Rector appeals to all graduates, former students, and friends of Catholic education for donations and legacies. The names of donors will be attached to buildings erected or funds established by them.

The legal title of the College for the purpose of bequests and donations is "*Loyola College*", Montreal.

STUDENT ORGANIZATIONS

Social Activities

College life must include the development of the social side of every student's character. Marked initiative, "savoir-faire" and leadership in organized religious and social movements for the common welfare of his fellows are qualities generally expected of a college man. For this purpose the College student organizations and activities furnish splendid opportunities.

However, be it said that with regard to all forms of college activities the policy of the Faculty has always been that the student's first duty in college is attention to study, and that no other student activity should be allowed to interfere with this main purpose of college life.

Eligibility Rules

Students taking part in dramatic performances, public debates, oratorical or elocution contests, or athletic events, as well as all officers of student organizations are subject to the following eligibility rules: (1) They must have shown satisfactory conduct and application and must remain in good

academic standing; (2) they must not be under censure at the time of their election or appointment.

Sodality of the Immaculate Conception

The purpose of the Sodality is to develop Christian character under the protection of the Mother of Our Lord and to cultivate the lay apostolate. The College Sodality endeavours to obtain this two-fold purpose by conducting weekly meetings in the Chapel at which the Office of the Blessed Virgin is recited and instructions are given by the Director, and by organizing sections for the promotion of special activities.

The Apostleship of Prayer, League of the Sacred Heart

The object of the Apostleship is two-fold: first, to instil into the students that apostolic spirit which, as public men, it is hoped they will later on exercise in the world; and secondly, to join in the great work of reparation for the outrages daily offered to Our Lord.

The public exercises, besides the regular Promoters' meetings, consist of monthly meetings of reparation to the Blessed Sacrament, on the First Friday of each month.

St. John Berchmans Society

This Society is of long standing in the College. It has for its object the fostering of an especial devotion in assisting at the altar in all religious ceremonies. Membership is restricted to resident students.

Loyola College Literary and Debating Societies

The Loyola College Literary and Debating Society, composed of students of Junior and Senior years, offers its members an opportunity for training in public speaking, which is at once practical and interesting. Formal debates between four speakers who have prepared their speeches, followed by general impromptu discussion, are held every week. Debates with the students of other Universities are arranged by the Inter-University Debating League of Canada, of which the Loyola College Debating Society is one of the constituent members. Inter-class debates are also included in the activities of the Society.

The *Forum*, a Literary and Debating Society composed of students of Freshman and Sophomore years, trains its members in public speaking, and in addition requires of them the preparation and public reading of papers on literary subjects. Its members are eligible for the Inter-University and Montreal Debating League teams and for inter-class debates.

College Orchestra

The College Orchestra affords opportunity for ensemble playing. Membership is open to those students who have sufficiently mastered the technique of an orchestral instrument, and display satisfactory facility in reading at sight moderately difficult music. The work of the orchestra is considerable, as it is called upon to play at the College entertainments throughout the year.

Athletic Association

The Loyola College Athletic Association was formed to aid the Director of Athletics in the promotion and supervision of all athletics in the College, and to create and foster a proper college spirit among the students.

An Athletic Board of Control, composed of Faculty members, guides the policy and over-all direction of the Physical Education program.

The Loyola College Alumni

The Loyola College Alumni has as its object to preserve and strengthen the ties of fellow-feeling and friendship among former students of the College and to afford them an opportunity of showing their attachment and esteem for their Alma Mater.

Any former student of the College may become a member of the Association, but may not become an officer until three years after his class has graduated from the College.

A General Meeting is held every year at the College. At this meeting officers for the coming year are elected, and all matters of general business transacted.

Loyola College Review and Loyola News

The "*Review*", established in 1915, is the principal publication issued by the students. Its purpose is to encourage literary efforts, and to chronicle matters of interest pertaining to the College. Our Alumni are cordially invited to co-operate in making the "*Review*" a useful medium of intercommunication. It is published on or about the 15th of June, and depends for its support on the students and friends of the College.

The "*Loyola News*", issued fortnightly, is a brief résumé of current events in College life. Copies are distributed to the students as well as sent regularly to the Alumni. As the monthly and semester standing in application and scholarship is published in the "*News*", parents should find it a valuable aid in judging of their sons' progress.

Loyola College Contingent C. O. T. C.

Aim

The Loyola College Contingent, Canadian Officers' Training Corps, is organized under the authority of Army Headquarters, Ottawa, and for all purposes of discipline and training is under the General Officer Commanding, Quebec Command, represented by a Resident Staff Officer attached to each University. The aim of the newly organized C.O.T.C. is to ensure Canada of its future leaders in Science, business, citizenship and in the event of war.

Training

This new establishment allows for a definite quota which is to be filled by volunteers from the College courses and further approved by the University Selection Board. The selected volunteer is given the rank of Student Provisional 2nd Lieutenant throughout the three years of his training and a choice of any branch of the Army. Also if the student so desires he may join, upon graduation, either the Canadian Army Active Force, Reserve Force, Supplementary Reserve or Retire. Each year of his training period is divided into 1: Theoretical lectures (Military Science, History, Law and Geography) carried on during the academic year, and, 2: a Practical Phase, based upon his chosen branch, carried out during the Summer Vacation at an allotted Military Camp.

Qualification

Upon the completion of the student's 2nd year training he will be qualified 2nd Lieutenant, Reserve Force and is commissioned as such. At the end of his 3rd year, he will be qualified Lieutenant, Active or Reserve Force. He can qualify in the rank of Captain, Reserve Force by joining a Reserve Force Unit within one year of completing his 3rd year C.O.T.C. and completing two years' satisfactory service.

Student Subsidization Plan

Any student, entering his final year, and interested in a military career in commissioned rank, whether on a short term or regular engagement, may apply for entry under the Student Subsidization Plan. If accepted, he will be paid as a 2nd Lieutenant during his final academic year (max. 8 months). His tuition, books and instruments necessary in his final year will also be paid for.

Scholarships

The College offers the following Scholarships:

The **William X. Bryan Scholarship.** This Scholarship was established by Loyola College in memory of Father William X. Bryan and is open to Junior Matriculation graduates of the English speaking Catholic High Schools of Montreal. The Scholarship valued at $100.00 per year for four years is awarded annually for high scholastic standing in the Junior Matriculation examinations of the Catholic High School Commission.

The **Erle Bartlett Scholarship.** A Scholarship established by Loyola College in memory of Father Erle Bartlett and awarded annually to a Senior Matriculation graduate of D'Arcy McGee High School. It is valued at $100.00 per year for three years.

The **Thomas Gasson Scholarship.** This Scholarship is awarded annually by Loyola College to a high ranking graduate of Catholic High School Senior Matriculation class. The Scholarship was founded in memory of Father Thomas Gasson and is valued at $100.00 per year for three years.

The **Thomas McMahon Scholarship.** This Scholarship was founded in memory of Father Thomas McMahon. It is awarded annually to the highest ranking student among Loyola High School graduates and is valued at $100.00 per year for four years.

The **John P. Cuddy Memorial Scholarship.** This was founded in 1927 by John P. Cuddy, Esq., in affectionate remembrance of a graduate of the class of 1917. It is awarded annually according to the conditions of the donor and is valued at $100.00 a year for one year.

The **Mother Ellen Mahoney Scholarship.** This Scholarship was founded in 1929 as a tribute of gratitude by members of the Business Women's Sacred Heart Retreat Association. It is awarded, when vacant, for a complete Arts course to a Montreal student desirous of studying for the Church and is valued at $100.00 a year for four years.

The **John Walsh Murphy Memorial Scholarship.** This Scholarship was founded in May, 1928, by Mr. and Mrs. George B. Murphy of Sherbrooke, P.Q., in affectionate remembrance of their son, a member of the Class of '29. It is awarded, when vacant, to a student from Sherbrooke and is valued at $100.00 a year for four years.

The **St. Ignatius Parish Scholarship** was founded in 1936 by the parishioners of St. Ignatius Parish and is open to the graduates of any High School whose parents have been members of the Parish for the preceding six months. This Scholarship is awarded when vacant for an Arts course and is valued at $100.00 per year for four years.

The **Friends of Loyola Scholarship.** This Scholarship was founded by friends of the late Father Gregory O'Brien, of the late William Doherty and of the late Father Raymond Cloran; as well as by Mrs. James Corcoran in memory of her son, a member of the Class of '30. It is awarded, when vacant, to a deserving student and is valued at $100.00 a year for four years.

The **Arthur Halley Memorial Scholarship.** This Scholarship was founded in 1946 by Mr. and Mrs. P. F. Halley of St. Johns, Newfoundland, in memory of their son, Arthur Patrick, a graduate Magna Cum Laude of the pre-Medical class of 1946, who died on the eve of Convocation. This Scholarship is awarded when vacant, to a pre-medical student and is valued at $100.00 a year for two years.

IMPERIAL OIL GRADUATE RESEARCH FELLOWSHIPS

Imperial Oil Limited, in 1946, established for annual competition four Graduate Research Fellowships now having a potential value of $3,750.00 each ($1,250.00 a year payable in Canadian funds for a maximum of three years). The fellowships are open to graduates of any approved University in Canada and are offered for research leading towards a Doctor's degree in the fields of Chemistry and/or Engineering (2 fellowships), Geology (1 fellowship) and Economics or Industrial Relations or Business Administration (1 fellowship). Nomination of students for the fellowships is made by the University—such nominations to be received by Imperial Oil Scholarship Committe, Imperial Oil Limited, 56 Church Street, Toronto, not later than June 1st of each year. Nomination forms and information as to the terms of the fellowships are obtainable at the Registrar's Office.

ACADEMIC AWARDS

Special Awards

Governor-General's Medal for highest over-all average in the four years of Arts Course.

Lieutenant-Governor's Silver Medal to the outstanding Engineer among the graduates.

Lieutenant-Governor's Bronze Medal for the highest over-all average in the four years of Commerce.

Gold Medal and Cash Prize for the outstanding Philosophy student among the graduates on the recommendation by the Philosophy Professors.

The **Amyot Scholarship of $100.00** for the outstanding work during the first three years of Arts.

The **Dent McCrea Award** presented by the Honourable Charles McCrea, Q.C., of Toronto, in memory of his son, Dent, a Loyola Graduate of 1926, for the best essay on a topic of the day.

Twenty-five Dollar Cash Prize for the highest ranking honours student among the graduates.

Special Cash Prize for the highest ranking pre-Medical student among the graduates.

Special Cash Prize for the highest four-year average in Theology in each of Arts, Science and Commerce.

The **William Henry Atherton Prize of $15.00** to be awarded to the highest ranking student in History 1 and History 2 combined.

The **"Loyola Medal"** donated by the Loyola College C.O.T.C. to the representative Loyola student among the graduates.

Gold Medal presented by Reverend Father Rector to the winner of the Public Speaking Contest.

Prizes

For the highest average in Freshman Arts, Sophomore Arts, Junior Arts, Freshman Science, Sophomore Engineering, Sophomore Honours Science, Junior Engineering, Junior Honours Science, Freshman Commerce, Sophomore Commerce and Junior Commerce.

For the highest ranking students in Freshman Arts Latin, Sophomore Arts Latin, Sophomore Arts English, Freshman Science, Science and Mathematics, Arts subjects in Sophomore Science, Freshman Commerce Accounting, Sophomore Commerce Accounting, Sophomore Commerce Arts subjects and Economics 4 in Junior Commerce.

ADMINISTRATION

Terms and Vacations

The College year begins during the third week of September, and includes thirty-six weeks which are divided into fall and spring terms or semesters of eighteen weeks each. There is a Christmas recess of two weeks. There is no recess at Easter; but it is customary to let the students go home, if their parents so request, from Wednesday afternoon in Holy Week until Easter Tuesday exclusively. Classes are not held on days observed as holy days of obligation in the Catholic Church.

Attendance at Lectures

Regular attendance at lectures is required in all subjects. A Freshman student is barred from sitting, at the regular time, for the examination in any subject of which he has missed, without adequate reason, 10% of the lectures.

The sanctions to be applied to students of other years who fail to attend lectures are left to the Dean and the professors concerned to decide.

Discipline

The education system employed by the College includes as one of its most important features the formation of character. For this reason, the discipline, while considerate, is firm, especially when the good of the Student Body or the reputation of the institution is concerned.

While it is the policy of the Faculty to trust as much as possible to the honour of the students themselves in carrying on the government of the College, nevertheless, for the maintaining of order and discipline, without which the desired results are not attainable, regular and punctual attendance, obedience to College regulations, serious application to study

and blameless conduct, will be insisted upon. Any serious neglect of these essential points will render the offender liable to moderate punishment, to suspension or even to dismissal, at the discretion of the College authorities.

Reports

Professors report frequently to the Dean on the academic standing of the students and to the College Prefect on attendance and general conduct.

A detailed report of the students' scholastic standing is sent to the parents or guardians at mid-year and after the final examinations. Special reports on individual students will be furnished at any time upon request.

Transcript of Record

Each student is entitled on leaving the College to a transcript of his record free of charge. For each additional transcript a fee of One Dollar will be charged. No transcripts will be issued during the periods of commencement, registration and examination.

COURSES OF STUDY OFFERED

The College offers the following four-year courses:

1. Courses leading to the Degree of Bachelor of Arts, with special modifications to meet pre-Medical and pre-Dental requirements.
2. Honour B.Sc. courses in Chemistry, Physics and Mathematics.
3. Courses in General Science with continuation subjects in Physics, Chemistry or Mathematics. These courses can be so arranged as to fulfil all pre-Medical requirements.
4. Courses leading to the degree of B.Sc. with a certificate in Engineering. (Holders of this Certificate are eligible to enter the second last year of their chosen branch of Engineering at McGill University.)
5. Courses leading to the Bachelor of Commerce degree.
6. The College also offers a two-year course which fulfils the requirements for pre-Dentistry.

ENTRANCE REQUIREMENTS

A candidate, to be admitted to Freshman year, must possess a Junior School Certificate (Loyola High School, Junior Catholic High School, McGill Junior School, or one of equivalent value). His High School record must show, moreover, that he possesses the ability to pursue his chosen course of studies in a satisfactory manner: good marks in Latin and English for the Arts Course; or a marked proficiency in Mathematics for any course in Science or Engineering.

Application should be made early. The required forms obtainable from the Registrar's Office, are to be filled out and returned along with an official transcript of marks, a testimonial of good character and a vaccination certificate. If any of these documents are not immediately available, they should be forwarded as soon as possible. Once the candidate is accepted these credentials become the property of the College and are kept permanently on file.

Upon notification of successful application, the candidate shall forward to the College the registration fee of Five Dollars ($5.00). Prospective resident students shall also forward the room deposit of Fifty Dollars ($50.00). No reservation will be made for the candidate until these conditions are met. The room deposit of $50.00 will be returned if application for residence is cancelled before September 1st.

Registration

All students are required to register on the dates assigned in the Academic Calendar. A fee of Five Dollars ($5.00) is charged as a penalty for late registration.

Admission to Advanced Standing

Candidates for admission from other Colleges which offer equivalent courses of study to those at Loyola College, will be granted the same standing as at the former institutions upon presenting in advance of registration: 1) an official transcript of College credits, with specifications of course and year when taken; 2) a marked copy of the Catalogue of that institution, indicating the course for which credit is claimed.

No student will be admitted to the College as a candidate for a degree after the beginning of the first semester of Junior Year.

A student who wishes to enter Sophomore Arts or Commerce, must possess the Senior Catholic High School Certificate, the McGill Senior School Certificate or the equivalent standing, and moreover, high marks in Latin and English. Latin, however, is not a prerequisite to enter the Commerce Course.

To enter Second Year of an Honours Science Course or the Engineering Course, the applicant must have succeeded well in the examinations for the Senior Catholic High School Certificate or the McGill Senior School Certificate or their equivalent. These examinations must have included papers in Intermediate Algebra, Analytic Geometry, Trigonometry, Chemistry and Physics. Besides succeeding well in these examinations, the student must show marked proficiency in the subject in which he wishes to take his Honours Degree.

To enter Second Year of the General Science Course, the student must have passed the examinations of Senior Matriculation Course.

Admission of Special Students

Students not proceeding to a degree may enter any one of the four years for which they are prepared.

Prospective students under this section should correspond with the Dean in regard to the arrangement of their courses.

EXAMINATIONS and PROMOTIONS

General Regulations

To pass his year a student must obtain the over-all average required in his Faculty and pass each subject as well. The pass marks are given below for the different Faculties.

A student may be promoted if he has obtained the required over-all average and failed in not more than one subject. The subject failed, however, may not be one prerequisite for the work of his succeeding year. A supplemental examination in the subject must be passed before the student will be promoted again to another year.

Students in Senior Year who have failed a subject in Junior must pass the supplemental in that subject before the beginning of the second term.

In determining the year's average the subjects are weighted according to the difficulty and importance of the subject matter. The weight for each subject is denoted by its index in the "Outline of Course".

A Freshman student repeating his year will be asked to discontinue if in the combined results of his first two series of tests he does not have the over-all average required by his Faculty: 60% in Arts and Commerce, 50% in Science.

Regulations Special to Each Faculty

Arts

In the Faculty of Arts, final examinations are held on the completion of each course: In January, for half-courses (i.e., courses covering the first semester); and in May, for full courses and for half-courses covering the second semester. Tests are held in November and in February.

For promotion, a student must obtain an over-all average of 60%; this average is computed on the total marks obtainable at the end of the scholastic year in May. In addition, he must not have a mark lower than 50% in any subject. A student with an over-all average of 60%, but under 50% in any subjects, must write supplemental examinations in these subjects in September in order to be considered eligible for promotion.

Science and Engineering

Final examinations in all subjects are held in May and cover the work of the entire year. If, however, a subject is completed at mid-year the examination in that subject will be held in January.

Tests in each subject are held two or three times during the year. The marks assigned to these tests will be announced by the Professor.

To pass his year the student must have an overall average of 50% and 50% in each subject.

Honours students must have an overall average of 65% and at least 50% in each subject to maintain honours standing. If they have made below 50% in a subject they may be allowed to write a supplemental examination in that subject to regain honours standing.

Commerce Course

Final examinations in all subjects are held in May and cover the work of the entire year.

Tests in each subject are given two or three times during the year. The value assigned to these tests will be announced by the Professor.

A student passes his year if he has an overall average of 60% and not below 50% in any subject.

DEGREES

Requirements for the Bachelor's Degree

Bachelor of Arts

In each of the four years the student must have an overall average of 60% and 50% in each subject.

Bachelor of Science (Honours)

In each of the four years the student must have an overall average of 65% and 50% in each subject.

Bachelor of Science (General)

In each of the four years the student must have an overall average of 50% and 50% in each subject.

Bachelor of Commerce

In each of the four years the student must have an overall average of 60% and 50% in each subject.

ACADEMIC HONOURS

For second class standing in the year's work an overall average of 65% is required.

For first class standing in the year's work an overall average of 80% is required.

The Bachelor's Degree is granted:

Cum laude—to those with a four-year average between 70% and 80%.

Magna cum laude—to those with a four-year average between 80% and 90%.

Summa cum laude—to those with a four-year average of 90% or over.

SUPPLEMENTAL EXAMINATIONS

Supplemental examinations are held before the opening of classes in September. For the date of these examinations see the calendar on page 4.

A Senior student carrying a failure from his Junior year will be given an opportunity of writing a supplemental examination in that subject before the beginning of his second semester.

The fee for each supplemental examination written at the regular above-mentioned times is Five Dollars ($5.00). Should permission be granted a student to write at any other time the fee is Ten Dollars ($10.00) for each examination.

Applications for September supplemental examinations, accompanied by the required fees' must be in the Registrar's Office by August 15th.

OUTLINE OF COURSES
BACHELOR OF ARTS (GENERAL) COURSE

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	English 2	..	..	..	1
	English 5	4	..	2	5/2
	French 1	3	..	2	3/2
	*Greek 1	3	..	2	3/2
	History 1	3	..	2	3/2
	Latin 1	3	..	2	2
	Latin 2	2	..	2	3/2
	*Mathematics 1a	3	..	1	¾
	*Mathematics 1b	3	..	1	¾
	Physical Education	1	..	2	..
	Public Speaking 1	1	..	2	½
	*Spanish 1	3	..	2	3/2
	Theology 1	2	..	2	1
	*One full course must be chosen from these subjects.				
Second	English 1	4	..	2	5/2
	English 6	..	..	..	1
	French 2	3	..	2	3/2
	*Greek	3	..	2	3/2
	*History 2	3	..	2	3/2
	Latin 3	3	..	2	2
	Latin 4	2	..	2	3/2
	*Mathematics 2b	3	..	1	¾
	*Mathematics 17	3	..	1	¾
	Public Speaking 2	1	..	2	½
	*Spanish 2	3	..	2	3/2
	Theology 2	2	..	2	1
	*Two full courses must be chosen from these subjects.				
Third	Biology 1	3	..	1	¾
	Chemistry 2	3	..	1	¾
	Economics 1	3	..	2	2
	English 10	2	..	2	3/2
	Philosophy 1	6	..	1	2
	Philosophy 2	6	..	1	2
	Philosophy 5, 6	2	..	2	¾
	Public Speaking 3	1	..	2	½
	Theology 3	2	..	2	1
Fourth	Economics 2	3	..	2	2
	*History 1	3	..	2	3/2
	*History 3	3	..	2	3/2
	Philosophy 3	2	..	2	3/2
	Philosophy 4	4	..	2	5/2
	Philosophy 5/6	2	..	2	¾
	Public Speaking 4	1	..	1	½
	Sociology 1	2	..	2	1
	Theology 4	2	..	2	1
	*One to be chosen.				

BACHELOR OF ARTS (PRE-MEDICAL) COURSE

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	English 2	..	..	..	1
	English 5	4	..	2	5/2
	French 1	3	..	2	3/2
	History 1	3	..	2	3/2
	Latin 1	3	..	2	2
	Latin 2	2	..	2	3/2
	Mathematics 1a	3	..	1	¾
	Mathematics 1b	3	..	1	¾
	Physical Education	1	..	2	..
	Public Speaking 1	1	..	2	½
	Theology 1	2	..	2	1
Second	Biology 2	1	..	2	1
	Biology 3	..	3	2	5/2
	English 1	4	..	2	5/2
	English 6	..	..	..	1
	French 2	3	..	2	3/2
	*Greek	3	..	2	3/2
	*History 2	3	..	2	3/2
	Latin 3	3	..	2	2
	Latin 4	2	..	2	3/2
	Public Speaking 2	1	..	2	½
	*Spanish 2	3	..	2	3/2
	Theology 2	2	..	2	1
	*One full course must be chosen from these subjects.				
Third	Biology 4	2	..	2	3/2
	Biology 5	..	6	2	2
	Chemistry 1	4	3	2	5/2
	Philosophy 1	6	..	1	2
	Philosophy 2	6	..	1	2
	Theology 3	2	..	2	1
Fourth	Biology 6, 7	2	3	1	3/2
	Biology 8	2	..	1	1
	Chemistry 5	3	3	2	5/2
	Chemistry 14	1	..	2	½
	Philosophy 3	2	..	2	3/2
	Philosophy 4	4	..	2	5/2
	Physics 1	4	3	2	5/2
	Theology 4	2	..	2	1

HONOURS CHEMISTRY COURSE

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	Algebra (Maths. 3)	3	..	2	3/2
	Analytic Geometry (Maths. 2b)	3	..	1	½
	Chemistry 1	4	3	2	2
	English 9	3	..	2	1
	French 3 or 5	2	..	2	1
	Physics 1	4	3	2	2
	Physical Education	1	..	2	..
	Public Speaking	1	..	2	½
	Theology 1	2	..	2	½
	Trigonometry (Maths. 2a)	3	..	1	1
Second	Analytical Geometry (Math. 6a)	3	..	1	½
	Calculus (Math. 5)	3	..	2	3/2
	Chemistry 3	2	6	1	1
	Chemistry 4	2	9	1	3/2
	Chemistry 5	3	3	2	3/2
	Chemistry 7, 7P	2	1	2	1
	*Chemistry 8	1	..	2	½
	English 4	3	..	2	1
	French 4 or 6	2	..	2	1
	Theology 2	2	..	2	½
Third	*Chemistry 9	2	..	2	1
	Chemistry 10	1	6	2	3/2
	Chemistry 11	1	..	2	½
	Chemistry 12	2	..	2	1
	*Chemistry 13	1	3, 6	2	1
	Differential Equations (Math. 9)	3	..	1	½
	Philosophy 11	5	..	1	1
	Philosophy 21	5	..	1	1
	Physics 3	3	3	2	2
	Theology 3	2	..	2	½
Fourth	*Chemistry 15	1	..	1	½
	Chemistry 16	1	..	2	½
	*Chemistry 17	1	..	2	½
	*Chemistry 18	..	6	2	1
	Chemistry 19	..	6	2	1
	Chemistry 21	1	6	1	1
	*Chemistry 22	2	..	2	1
	Mechanics 5	3	..	2	1
	Philosophy 31	2	..	1	½
	Philosophy 4	4	..	2	3/2
	Theology 4	2	..	2	½

*Course not given in 1953-54.

HONOURS MATHEMATICS COURSE

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	Algebra (Maths. 3)	3	..	2	3/2
	Analytic Geometry (Maths. 2b)	3	..	1	½
	Chemistry 1	4	3	2	2
	English 9	3	..	2	1
	French 3 or 5	2	..	2	1
	Physics 1	4	3	2	2
	Physical Education	1	..	2	..
	Public Speaking	1	..	2	½
	Theology 1	2	..	2	½
	Trigonometry (Maths. 2a)	3	..	1	1
Second	Algebra (Maths. 7a, 7b)	3	..	2	3/2
	Analytic Geometry (Maths. 6)	3	..	2	½, 1
	Calculus (Maths. 5)	3	..	2	3/2
	Chemistry 7, 7P	2	1	2	1
	English 4	3	..	2	1
	French 4 or 6	2	..	2	1
	Theology 2	2	..	2	½
Third	Algebra and Calculus (Maths. 8b)	3	..	2	1
	Complex Variable Theory (Maths. 10)	3	..	2	2
	Differential Equations (Maths. 9)	3	..	1	1
	History 4	1	..	2	½
	Mechanics 3	3	..	2	3/2
	Philosophy 11	5	..	1	1
	Philosophy 21	5	..	1	1
	Physics 3T	3	..	2	5/4
	Theology 3	2	..	2	½
Fourth	History 5	1	..	2	½
	Mechanics 4	3	..	2	3/2
	Modern Geometry (Maths. 15)	3	..	1	3/2
	Number Theory (Maths. 16)	3	..	1	3/2
	Philosophy 31	2	..	1	½
	Philosophy 4	4	..	2	3/2
	Real Variable (Maths. 11, 12)	3	..	2	2
	Theology 4	2	..	2	½

HONOURS PHYSICS COURSE

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	Algebra (Maths. 3)	3	..	2	3/2
	Analytic Geometry (Maths. 2b)	3	..	1	½
	Chemistry 1	4	3	2	2
	English 9	3	..	2	1
	French 3 or 5	2	..	2	1
	Physical Education	1	..	2	..
	Physics I	4	..	3	2
	Public Speaking	1	..	2	½
	Theology 1	2	..	2	½
	Trigonometry (Maths. 2a)	3	..	1	1
Second	Algebra (Maths. 7)	3	..	2	3/2
	Analytic Geometry (Maths. 6a-6b)	3	..	2	½, 1
	Calculus (Maths. 5)	3	..	2	3/2
	Chemistry 7, 7P	2	1	2	1
	English 4	3	..	2	1
	French 4 or 6	2	..	2	1
	Physics 2	3	3	2	3/2
	Theology 2	2	..	2	½
Third	Differential Equations (Maths. 9)	3	..	1	1
	History 4	1	..	2	½
	Maths. 10	3	..	2	1
	Mechanics 3	3	..	2	3/2
	Philosophy 11	5	..	1	1
	Philosophy 21	5	..	1	1
	Physics 3	3	3	2	2
	Physics 5	2	..	2	1
	Theology 3	2	..	2	½
Fourth	History 5	1	..	2	½
	Maths. 11	3	..	1	1
	Maths. 13	3	..	1	1
	Mechanics 4	3	..	2	2
	Philosophy 31	2		1	½
	Philosophy 4	4	..	2	3/2
	Physics 6	2	..	1	3/2
	Physics 8	2	4	2	2
	Physics 10	1	..	2	½
	Theology 4	2	..	2	½

GENERAL SCIENCE CHEMISTRY

First Year is the same as in Honours Physics, p. 26. A student, however, may postpone Physics 1 to Second Year.

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
Second	Chemistry 3	2	6	1	1
	Chemistry 4	2	9	1	3/2
	Chemistry 5	3	3	2	3/2
	English 4	3	..	2	1
	French 4 or 6	2	..	2	1
	Mathematics 6a	3	..	1	½
	Theology 2	2	..	2	½

Students who are taking Physics 1 in their Second Year will postpone Chemistry 3 and Chemistry 4 to Third Year.

Third	Chemistry 9	2	..	2	1
	or				
	Chemistry 22	2	..	2	1
	Chemistry 10	1	6	2	3/2
	Chemistry 13	1	3, 6	2	1
	Mathematics 5	3	..	2	3/2
	Philosophy 11	5	..	1	1
	Philosophy 21	5	..	1	1
	Theology 3	2	..	2	½

Students whose continuation subject is Organic Chemistry will not take Chemistry 10. They will, however, take Chemistry 3 and Chemistry 4 if they did not have it in Second Year.

Students whose continuation subject is Analytic Chemistry will take Chemistry 10 but not Chemistry 9, Chemistry 13 or Chemistry 22. If, however, they did not take Chemistry 3 and Chemistry 4 in Second Year they will take it in Third and postpone Chemistry 10 to Fourth Year.

Fourth	Chemistry 7	2	1	2	1
	Chemistry 9	2	..	2	1
	or				
	Chemistry 22	2	..	2	1
	Chemistry 19	..	6	2	1
	Philosophy 31	2	..	1	½
	Philosophy 4	4	..	2	3/2
	Theology 4	2	..	2	½

Students whose continuation subject is Analytic Chemistry will replace Chemistry 19 by Chemistry 13. They will also take Chemistry 10 if it was not taken in Third Year.

GENERAL SCIENCE CHEMISTRY AND BIOLOGY

Science Pre-Medical Course

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	The same as in Honours Chemistry except that Physics 1 may be taken in Second Year.				
Second	Biology 2 and 3	1	3	2	3/2
	Chemistry 3	2	6	1	1
	Chemistry 4	2	6	1	3/2
	Chemistry 5	3	3	2	3/2
	English 4	3	..	2	1
	French 4 or 6	2	..	2	1
	Mathematics 6a	3	..	1	½
	Theology 2	2	..	2	½
	Chemistry 3 and 4 may be replaced by Physics 1 if not already taken.				
Third	Biology 4 and 5	2	6	2	2
	Chemistry 13	1	4½	2	1
	or				
	Chemistry 21	2	3	2	1
	Philosophy 11	5	..	1	1
	Philosophy 21	5	..	1	1
	Theology 3	2	..	2	½
	Also Chemistry 3 and 4 if not already taken or another subject chosen with the approval of the Faculty.				
Fourth	Biology 6 and 7	2	3	1	5/4
	Biology 8	2	..	1	¾
	Chemistry 13	1	4½	2	1
	or				
	Chemistry 21	2	3	2	1
	Chemistry 22	2	..	2	1
	Philosophy 4	4	..	2	3/2
	Philosophy 31	2	..	1	½
	Theology 4	2	..	2	½

GENERAL SCIENCE PHYSICS

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	The same as in Honours Physics except that a student may postpone Chemistry 1 to Second Year.				
Second	Desc. Geom.	2	4	2	2
	English 4	3	..	2	1
	French 4 or 6	2	..	2	1
	Mathematics 5	3	..	2	3/2
	Mathematics 6a	3	..	1	½
	Physics 2	3	3	2	3/2
	Theology 2	2	..	2	½
	Students who are taking Chemistry 1 in Second Year will drop Desc. Geom.				
Third	Mathematics 8	3	..	2	2
	Mechanics 1	2	..	2	1
	Philosophy 11	5	..	1	1
	Philosophy 21	5	..	1	1
	Physics 3	3	3	2	2
	Theology 3	2	..	2	½
Fourth	Mathematics 9	3	..	1	1
	Mechanics 2	2	2	2	1
	Philosophy 31	2	..	1	½
	Philosophy 4	4	..	2	3/2
	Physics 8	2	3	2	3/2
	Theology 4	2	..	2	½

COURSE IN CHEMICAL ENGINEERING

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	Algebra (Maths. 3)	3	..	2	3/2
	Analytic Geometry (Maths. 2b)	3	..	1	½
	Chemistry 1	4	3	2	2
	English 9 and 13	3	..	2	1
	French 3 or 5	2	..	2	1
	Physics 1	4	3	2	2
	Physical Education	1	..	2	..
	Public Speaking	1	..	2	½
	Theology 1	2	..	2	½
	Trigonometry (Maths. 2a)	3	..	1	1
Second	Analytic Geometry (Maths. 6a)	3	..	1	½
	Calculus (Maths. 5)	3	..	2	3/2
	Chemistry 7, 7P	2	1	2	1
	Descriptive Geometry 1	2	4	2	2
	English 4	3	..	2	1,¼
	Engineering Problems 1	1	..	2	¼
	French 4 or 6	2	..	2	1
	Mechanical Drawing 1	..	3	2	1
	Physics 2	3	3	2	3/2
	Theology 2	2	..	2	½
Third	Algebra and Spherical Trig. (Maths. 8a)	3	..	1	1
	Algebra and Calculus (Maths. 8b)	3	..	1	1
	Chemistry 3	2	6	1	1
	Chemistry 4	2	9	1	3/2
	Engineering Problems 2	1	2	2	½
	History 4	1	..	2	½
	Mechanics 1	2	..	2	1
	Philosophy 11	5	..	1	1
	Philosophy 21	5	..	1	1
	Physics 3	3	3	2	2
	Surveying 1	2	..	1	½
	Theology 3	2	..	2	½
Fourth	Chemistry 5	3	3	2	5/2
	Chemistry 10	1	6	2	3/2
	Engineering Problems 3	1	2	2	½
	Materials of Engineering 1	1	..	2	½
	Mechanics 2	2	2	2	1
	Philosophy 31	2	..	1	½
	Philosophy 4	4	..	2	3/2
	Problems of Advanced Calculus (Maths. 14)	3	..	2	1
	Summary Essay	..	..	..	½
	Theology	2	..	2	½

Course in Civil, Electrical and Mechanical Engineering

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	Algebra (Maths. 3)	3	..	2	3/2
	Analytic Geometry (Maths. 2b)	3	..	1	½
	Chemistry 1	4	3	2	2
	English 9 and 13	3	..	2	1
	French 3 or 5	2	..	2	1
	Physics 1	4	3	2	2
	Physical Education	1	..	2	..
	Public Speaking	1	..	2	½
	Theology 1	2	..	2	½
	Trigonometry (Maths. 2a)	3	..	1	½
Second	Analytic Geometry (Maths. 6a)	3	..	1	½
	Calculus (Maths. 5)	3	..	2	3/2
	Chemistry 7, 7P	2	1	2	1
	Descriptive Geometry 1	2	4	2	2
	English 4	3	..	2	1, ¼
	Engineering Problems 1	1	..	2	¼
	French 4 or 6	2	..	2	1
	Mechanical Drawing 1	..	3	2	1
	Physics 2	3	3	2	3/2
	Theology 2	2	..	2	½
Third	Algebra and Spherical Trig. (Maths. 8a)	3	..	1	1
	Algebra and Calculus (Maths. 8b)	3	..	1	1
	Engineering Problems 2	1	2	2	½
	Geology 1	2	2	2	3/2
	History 4	1	..	2	½
	Mechanics 1	2	..	2	1
	Philosophy 11	5	..	1	1
	Philosophy 21	5	..	1	1
	Physics 3	3	3	2	2
	Surveying 1	2	..	1	½
	Surveying 2 Field Work (Summer)	..	..	..	½
	Theology 3	2	..	2	½
Fourth	**D/C Motors (Physics 9)	2	..	1	½
	Mapping 1	..	6	1	½
	Materials of Engineering 1	1	..	2	½
	Mechanical Drawing 2	3	..	2	1
	Mechanics 2	2	2	2	1
	Mechanics of Machines 1	1	3	1	1
	Philosophy 31	2	..	1	½
	Philosophy 4	4	..	2	3/2
	Problems of Advanced Calculus (Maths. 14)	3	..	2	1
	Surveying 3	2	..	1	½
	Summer Essay	..	..	..	½
	Theology 4	2	..	2	½

**Only for Electric Engineers.

In addition to the above courses:

Mechanical Engineers take a four-week summer school in Mechanical Drawing and Machine Shop Work during September after Fourth Year. Civil Engineers attend a special summer school in Surveying during May after Fourth Year.

Course in Mining Engineering

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	Algebra (Maths. 3)	3	..	2	3/2
	Analytic Geometry (Maths. 2b)	3	..	1	½
	Chemistry 1	4	3	2	2
	English 9 and 13	3	..	2	1
	French 3 or 5	2	..	2	1
	Physics 1	4	3	2	2
	Physical Education	1	..	2	..
	Public Speaking	1	..	2	½
	Theology 1	2	..	2	½
	Trigonometry (Maths. 2a)	3	..	1	1
Second	Analytic Geometry (Maths. 6a)	3	..	1	½
	Calculus (Maths. 5)	3	..	2	3/2
	Chemistry 7, 7P	2	1	2	1
	Descriptive Geometry 1	2	4	2	2
	English 4	3	..	2	1, ¼
	Engineering Problems 1	1	..	2	¼
	French 4 or 6	2	..	2	1
	Mechanical Drawing 1	..	3	2	1
	Physics 2	3	3	2	3/2
	Theology 2	2	..	2	½
Third	Algebra and Spherical Trig. (Maths. 8a)	3	..	1	1
	Algebra and Calculus (Maths. 8b)	3	..	1	1
	Chemistry 3	2	6	1	1
	Chemistry 4	2	9	1	3/2
	Engineering Problems 2	..	3	2	½
	Geology 1	2	2	2	3/2
	History 4	1	..	2	½
	Mechanics 1	2	..	2	1
	Philosophy 11	5	..	1	1
	Philosophy 21	5	..	1	1
	Physics 3	3	3	2	2
	Surveying 1	2	..	1	½
	Surveying 2, Field Work (Summer)	..	..	..	½
	Theology 3	2	..	2	½
Fourth	Mapping	..	3	1	½
	Materials of Engineering 1	1	..	2	½
	Mechanical Drawing 2	..	3	1	1
	Mechanics 2	2	2	2	1
	Mineralogy 1	2	..	2	1
	Mineralogy 2	..	3	1	½
	Mineralogy 3	3	..	1	½
	Philosophy 31	2	..	1	½
	Philosophy 4	4	..	2	3/2
	Problems of Advanced Calculus (Maths. 14)	3	..	2	1
	Surveying 3	2	..	1	½
	Summer Essay	..	..	..	½
	Theology 4	2	..	2	½

In addition: Students in Mining Engineering are required to attend a Special Summer School in Surveying during May after Fourth Year.

Course in Engineering Physics

Year	Subject	Lect. Hrs.	Lab. Hrs.	Sem's.	Index
First	Algebra (Maths. 3)	3	..	2	3/2
	Analytic Geometry (Maths. 2b)	3	..	1	½
	Chemistry 1	4	3	2	2
	English 9 and 13	3	..	2	1
	French 3 or 5	2	..	2	1
	Physics 1	4	3	2	2
	Physical Education	1	..	2	..
	Public Speaking	1	..	2	½
	Theology 1	2	..	2	½
	Trigonometry (Maths. 2a)	3	..	1	1
Second	Analytic Geometry (Maths. 6a)	3	..	1	½
	Calculus (Maths. 5)	3	..	2	3/2
	Chemistry 7, 7P	2	1	2	1
	Descriptive Geometry 1	2	4	2	2
	English 4	3	..	2	1, ¼
	Engineering Problems 1	1	..	2	¼
	French 4 or 6	2	..	2	1
	Mechanical Drawing 1	..	3	2	1
	Physics 2	3	3	2	3/2
	Theology 2	2	..	2	½
Third	Algebra and Spherical Trig. (Maths. 8a)	3	..	1	1
	Algebra and Calculus (Maths. 8b)	3	..	1	1
	Differential Equations (Maths. 9)	3	..	1	1
	Engineering Problems 2	1	2	2	½
	History 3	1	..	2	½
	Mechanics 1	2	..	2	1
	Philosophy 11	5	..	1	1
	Philosophy 21	5	..	1	1
	D/C Motors	2	..	1	½
	Physics 3	3	3	2	2
	Surveying 1	2	..	1	½
	Surveying 2 Field Work (Summer)	..	..	..	½
	Theology 3	2	..	2	½
Fourth	Infinite Series and Integrals (Maths. 11)	3	..	1	1
	Mapping 1	..	3	1	½
	Materials of Engineering 1	1	..	2	½
	Mechanics 2	2	2	2	1
	Methods of Advanced Calculus (Maths. 13)	3	..	1	1
	Philosophy 31	2	..	1	½
	Philosophy 4	4	..	2	3/2
	Physics 5	2	..	2	1
	Problems of Advanced Calculus (Maths. 14)	3	..	2	1
	Summer Essay	..	..	..	½
	Theology 4	2	..	2	½

Course leading to Bachelor of Commerce

Year	Subject	Lect. Hrs.	Sem's	Index
First	Accountancy 1	3	2	2
	Economics 1—Economic History	3	2	2
	English 2	3	2	2
	English 5	1	2	3/2
	French 3 or 5	3	2	3/2
	Mathematics 1	3	2	3/2
	Physical Education	1	2	..
	Public Speaking	1	2	½
	Theology 1	2	2	1
Second	Accountancy 2	3	2	2
	Commercial Law	3	2	3/2
	Economics 2—Principles of Economics	3	2	2
	English 1	3	2	2
	English 6	1	2	3/2
	French 4 or 6	3	2	3/2
	Mathematics 2b	3	1	¾
	Mathematics 17	3	1	¾
	Principles and Practice of Commerce	2	2	1
	Public Speaking	1	2	½
	Theology 2	2	2	1
Third	Accountancy 3 (Prerequisite Math. 2b and 17)	3	2	2
	Business Administration	2	1	1
	Economics 3	3	2	2
	Economics 4	3	2	2
	Economics 5	3	2	2
	*Economics 6 or Economics 7	3	2	2
	Philosophy 11	5	1	2
	Philosophy 21	5	1	2
	Practice of Foreign Trade	2	1	1
	Public Speaking	1	2	½
	Theology 3	2	2	1
Fourth	Accounting 4	4	2	2
	Economics 5	3	2	2
	Economics 7 or *Economics 6	3	2	2
	Philosophy 4	4	2	3
	Philosophy 31	2	1	1
	Public Speaking	1	1	½
	Sociology	2	2	1
	Theology 4	2	2	1

*Course not given in 1953-54.

DETAILS OF COURSES OF INSTRUCTION

The Faculty reserves the right to refuse to offer a course listed below for which there is not a sufficient number of applicants.

ACCOUNTANCY

The First and Second Year Courses are obligatory and are prerequisites to Accountancy 3 and 4. Third and fourth years are optional for B. Com. Students.

Elements of Accounting

First Year — Professor Desmond F. McNamee, C.A.

Accountancy 1. Introductions to Books of Account and Financial Statements; theory of debit and credit; principles of double entry; books of original entry; transactions through the general journal and sales and purchase books; special forms of cash book; controlling accounts; genera ledger; accounts receivable and accounts payable ledgers; discounts, interest, prepaid and accrued charges; notes and bills of exchange; cheques, invoices, statements of account, bills of lading and other; commercial papers; imprest system of petty cash; depreciation; reserves for bad debts and discounts; inward and outward consignments; capital and revenue expenditures; bank reconciliations; voucher register; single entry; preparation of Trading and Profit and Loss Statements and Balance Sheets, single proprietorship; introduction to Work Sheet.

LECTURES: *Three hours a week for two semesters.*

TEXT-BOOKS: McFarland, *Accounting Fundamentals* (McGraw-Hill). Thompson, *120 Exercises in Bookkeeping* (Pitman).

Accountancy 2. Partnerships, Corporation, Manufacturing Accounts.

Second Year — Professor Desmond F. McNamee, C.A.

Operating Statements and Balance Sheets with enlargement of Work Sheet Practice introduced in First Year.

Partnerships: formation, the partnership agreement; classes of partners and of partnerships; rights, duties and powers of partners; distribution of profits; admission and withdrawal of partners; partnership dissolution; sale of a partnership to a Corporation; default of a partner, goodwill.

Corporations: formation and control; shareholders, directors; meetings; public and private companies; capital stock; limited liability; statutory books; auditors; dissolution. Accounting for Corporation taking over sole proprietor or partnership. Exchange of shares in Corporation for Assets in business selling out.

Manufacturing accounts and statements; factory departments; elements of cost; materials and supplies; work in process and finished goods accounts.

Departmental Accounts: distribution of charges to departments; comparison of department operations.

Depreciation: Causes of and accounting for depreciation.

Reserves and reserve funds.

Analysis and Interpretation of Financial Statements: Principles of valuation of current and fixed assets and liabilities; comparative balance sheets, ratios re working capital, share valuation, etc.

LECTURES: *Three hours a week for two semesters.*

TEXT-BOOKS: MacFarland and Ayars *"Accounting Fundamentals"*.
Thompson *120 Graduated Exercises in Bookkeeping.*
F. G. H. Smails *"Accounting Principles and Practice (1948)"*.

Accountancy 3. Statement analysis, auditing and branch accounts.

Third Year Professor James H. McMahon, C.A.

Enlargement of study, relative to analysis and interpretation of financial statements; sources and application of funds; equity of shares; sundry analyses; comparative ratios; critical analysis of the balance sheet.

Branch Accounts: Merchandise charged at cost, intermediate or selling prices; foreign branches; conversion of accounts in foreign currency.

Bonds and Debentures: Security payment of interest and principal; trust deed; issue and redemption; accounting for bond issue, interest and amortization.

Auditing: Classification and scope; internal check; rights, duties and responsibility of auditors; fraud and error in accounts; legal regulations — Dominion and Provincial; audit procedure and programmes; audit certificate and reports; audit working papers.

Investigations: Nature and classes of business investigations; methods of approach to an investigation; investigations not involving fraud or loss — prospectus certificate, proposed merger, prospective investor or purchaser, reorganization of capital structure. Investigations involving fraud and loss — fraud, fire loss, burglary costs, etc.

LECTURES: *Three hours a week for two semesters.*

TEXT-BOOKS: R. G. H. Smails, *Auditing* (Pitman).
H. A. Finney, *Principles of Accounting — Intermediate*, (4th ed.).
Dominion and Provincial Companies' Act.

REFERENCE BOOKS: H. A. Finney, *Principles of Accounting — Advanced.*
MacFarland and Ayars, *"Accounting Fundamentals"*.
Jackson, *Working Papers.*
F. G. H. Smails, *Accounting Principles.*

Accountancy 4. Cost accounting, executorships, bankruptcy and liquidation, holding companies.

Fourth Year Professor Lawrence Bessner, C.A.

Cost Accounting: Terms and cost formulae; elements of cost; cost records, cost reports, estimating cost systems; standard costs; job costs; variances, cost ratios.

Budgetary Control, preparation and control of the budget, variable expense budgets.

Holding Companies: Consolidated statements; inter-company transactions and accounts — stock and bond holdings; investment accounts; minority interest.

Reorganizations, Mergers and Amalgamations: Rights and privileges of creditors and shareholders, plan of reconstruction.

Executorships: Charge and discharge statements; capital and income; division of an estate; succession duties.

Bankruptcy and Liquidation Accounts: Receivers' accounts; priority of creditors; statement of affairs; deficiency account; realization and liquidation statement.

Income Tax: Individuals; proprietors; partners; corporations; general considerations.

LECTURES: *Four hours a week for two semesters.*

TEXT-BOOKS: Sherwood and Chase, *"Principles of Cost Accounting."*
Karrenbrook and Simons, *"Advanced Accounting."*
Gilmour, *"New Income Tax Handbook."*

REFERENCES: C. L. Van Sickle, *"Cost Accounting"*.
J. H. Williams, *"Flexible Budgets"*.
R. B. Kester, *"Advanced Accounting"*.
Ferguson & Crocombe, *"Holding Companies and their Accounts"*.
Anger, *"Digest of Mercantile Law"*.

BIOLOGY

Biology 1. Fundamental Biology. A series of thirty-five lectures and demonstrations designed to acquaint the general student with those fundamental principles of life which are the basis for an understanding of the structure and function of the living body.

LECTURES: *Three hour a week for one semester.*

REFERENCE BOOKS: Williams, *A textbook of Anatomy and Physiology* (Saunders), Best & Taylor: *The Human Body and its Functions* (Holt), Mavor: *General Biology* (MacMillan).

Biology 2. Invertebrate Zoology. An introductory course including the following topics:

(a) The meaning of Science and Scientific Method and their application to the living sciences.

(b) The characteristics of life, protoplasm, the cell as the unit of structure and function.

(c) A detailed and comparative study of the phyla of the invertebrate animals.

LECTURE: *One hour per week for two semesters.*

TEXT-BOOK: Storer, *General Zoology* (McGraw-Hill).

REFERENCE BOOKS: Buchsbaum, *Animals without backbones* (Univ. of Chicago Press)
Hegner, *College Zoology* (Macmillan).

Biology 3. Invertebrate Zoology. A laboratory course designed to accompany course 2. It includes introductory exercises on the use of the microscope and the interpretation of microscopic sections. A detailed study is made of the internal and external anatomy of representative animals of the invertebrate phyla. This is supplemented, where possible, by a study of living animals and microscopic sections.

LABORATORY: *Three hours per week for two semesters.*

Biology 4 Vertebrate Zoology. A lecture course designed to follow course 2. It covers such topics as the essential difference between the invertebrates and the vertebrates, classification and history of the vertebrates, the basic structure of the vertebrate body. Following this, the important type vertebrates will be studied in detail, particular stress being laid on comparative structure.

LECTURE: *Two hours per week for two semesters.*
TEXT-BOOK: Storer, *General Zoology* (McGraw-Hill).
REFERENCE BOOKS: Walter, *Biology of the Vertebrates* (Macmillan
Neal and Rand, *Chordate Anatomy* (Blakiston).
PREREQUISITE: *Biology* 1.

Biology 5. Lab. Vertebrate Zoology. A laboratory course to illustrate course 4. It comprises a detailed study of the structure of amphioxus, dogfish, frog and rabbit. The course is so conducted that, by training in exact dissection, observation and the preparation of carefully executed drawings, the student may be able to trace the main features of organisation from the lower to the higher vertebrates.

LABORATORY: *Six hours per week for two semesters.*
TEXT-BOOKS: Craigie, Bensley's *Practical Anatomy of the Rabbit* (Univ. of Toronto Press).

Biology 6. Histology. An introductory course which begins with the cell as the unit of structure and growth. Amitosis, mitosis and meiosis are

discussed. The origin and basic types of animal tissues are explained, and special reference is made to their derivatives in vertebrate histology.

LECTURE: *Two hours per week for one semester.*

REFERENCE BOOKS: Maximow and Bloom, *Textbook of Histology* (Saunders).
Stiles, *Handbook of Histology* (Blakiston).
Cole, *Textbook of comparative Histology* (Blakiston).

Biology 7. Histology. A laboratory course to accompany course 6. It is designed to introduce the student to the fundamentals of cytological and histological technique, and to illustrate by means of prepared slides the phenomena of amitosis, mitosis and meiosis, as well as the basic types of histological tissues.

LABORATORY: *Three hours per week for one semester.*

Biology 8. Survey Course. A course of thirty lectures on selected topics from the sciences of Genetics, Embryology, Physiology and Comparative Anatomy, whose purpose is to introduce the student to the fundamental principles and theories of Biology from the stand-point of origin, development, structure and function.

LECTURE: *Two hours per week for one semester.*

REFERENCE BOOKS: Sinnott and Dunn, *Principles of Genetics* (McGraw-Hill).
Arey, *Developmental Anatomy* (Saunders).
Heilbrunn, *An Outline of General Physiology* (Saunders).
William, *Text-book of Anatomy and Physiology* (Saunders).
Neil and Rand, *Comparative Anatomy* (Blakiston).
Curt Stern, *Human Genetics* (Freeman)

BUSINESS PRACTICE

Principles and Practice of Commerce

1. **General Notions:** Origin and scope of Commerce; forms of business undertakings, their establishment and organization; persons engaged in Commerce; commodities and markets; trade and its division (home and foreign trade, wholesale and retail trade); auxiliaries to trade (banking and finance, transport, insurance, warehousing).

2. **Practice:** Buying and selling (different kinds of transactions discussed); packing and forwarding; insuring and storing; methods of payment; letters, invoices and accounts; business documents.

LECTURES: *Two hours for two semesters.*

*Business Administration

The development of modern management; functions and division of responsibility; managerial controls and records; accounting principles and records; statistics and statistical procedures; personnel management, employment procedures and practice.

LECTURES: *Two hours for one semester.*

*Practice of Foreign Trade

Marketing of primary products (sales through produce exchanges; futures, hedging, arbitrage; sales by auction; sales by private bargaining); marketing of manufactured goods (market research, advertising, export selling organization, purchase and export agents, their appointment and their functions); trade terms and definitions; documentation; handling of import and export traffic; customs procedure; Canadian import and export control regulations; financing of foreign trade; export credits insurance.

LECTURES: *Two hours for one semester.*

*Not given in 1953-54.

CHEMISTRY

Chemistry. 1. *General Chemistry* (*full course*). Theory — An introduction to the fundamental principles and facts of chemistry. Non-mathematical discussion of the kinetic molecular theory. Theory of ionization and of the factors influencing reaction velocities and equilibrium. Systematic study of properties and reactions of representative elements. Laboratory— A study of the properties of non-metals and their compounds, quantitative experiments (including volumetric analysis) and an introduction to qualitative analysis.

LECTURES: *Four hours a week for two semesters.*

LABORATORY: *Three hours a week for two semesters.*

TEXT BOOKS: Briscoe, *College Chemistry* (Houghton-Mifflin)
King, *Semimicro Experiments in General Chemistry*

REFERENCE BOOK: Schlesinger, *General Chemistry* (Longman-Green).

Chemistry. 2. A course in Chemistry offered to students of the B.A. Course.

LECTURES: *Three hours a week for one semester.*

REFERENCE BOOKS: Hatcher, *An Introduction to Chemical Science* (Wiley). Glockler, *Chemistry in our Time* (Crofts).

Chemistry. 3. *Semi-Micro Inorganic Qualitative Analysis* (*full course*). Theory — Nature of solutions, electrolytes, law chemical equilibrium, ionization constants, solubility products, common ion effect, formation and dissolution of precipitates, equilibrium law applied to hydrolysis, amphoterism, complex ions and complex compounds. Laboratory — The

methods and technique of semi-microanalysis are applied to the ordinary scheme for the separation and identification of the common ions.

LECTURES: *Two hours per week for one semester.*

LABORATORY: *Six hours per week for one semester.*

TEXT BOOK: Curtman, *Introduction to Semimicro Qualitative Chemical Analysis*

PREREQUISITE: *Chemistry 1.*

Chemistry. 4. *Quantitative Inorganic Analysis* (*Elementary*) (*full course*). Theory — Theoretical aspects of precipitation in gravimetric and volumetric analysis, theory of indicators, acid-base titration, oxidation — reduction methods of analysis. Laboratory — simple gravimetric determinations, methods of volumetric analysis, precipitation, oxidation-reduction and neutralization.

LECTURES: *Two hours per week for one semester.*

LABORATORY: *Nine hours per week for one semester.*

TEXT BOOK: *Quantitative Analysis*, Booth Damerell (McGraw-Hill)

REFERENCE BOOK: Kolthoff, Sandell, *Text-Book of Quantitative Inorganic Analysis* (MacMillan).

PREREQUISITE: *Chemistry 1.*

Chemistry. 5. *Organic Chemistry* (*Elementary*) (*full course*). Nomenclature, synthesis and type reactions of aliphatic, alicyclic and aromatic hydrocarbons and their principal derivatives. Elementary applications of electron theory to organic chemistry.

LECTURES: *Three hours per week for two semesters.*

LABORATORY: *Three hours per week for two semesters.*

TEXT BOOKS: Noller, *Text Book of Organic Chemistry* (Saunders); Cason & Rapoport, *Laboratory Text in Organic Chemistry* (Prentice-Hall).

REFERENCE BOOKS: Brewster, *Organic Chemistry* (Prentice-Hall). Fieser and Fieser, *Text Book of Organic Chemistry* (Heath).

Chemistry. 7. *Physical Chemistry* (*Elementary*) (*full course*). Introductory course in the principles of Physical Chemistry, and includes the following topics: states of matter, equilibria, electrochemical phenomena, chemical kinetics, thermodynamics.

LECTURES: *Two hours per week for two semesters.*

REFERENCE BOOKS: Maass and Steacie, *Introduction to the Principles of Physical Chemistry* (Wiley).
Daniels, *Outline of Physical Chemistry.*

PREREQUISITE: *Chemistry 1.*

Chemistry. 7P. *Physical Chemistry Problems* (*half-course*). Problems to illustrate the physico-chemical principles.

LECTURE: *One hour per week for two semesters.*

TEXT-BOOK: Babor and Thiessen, *How to Solve Problems in Physical Chemistry* (Crowell).

PREREQUISITE: *Chemistry 1. Chemistry 7 to be taken concurrently.*

***Chemistry.** 8. *Inorganic Chemistry* (*half-course*). A systematic study of the Pereodic Table.

LECTURE: *one hour per week for two semesters.*

REFERENCE BOOKS: Latimer-Hildebrand, *Reference Book of Inorganic Chemistry* (Macmillan).
Ephraim, *Inorganic Chemistry* (Nordeman).
Yost & Russell: *Systematic Inorganic Chemistry* (Prentice Hall).

PREREQUISITE: *Chemistry 1.*

***Chemistry.** 9. *Organic Chemistry* (*Adv. 1*) (*full course*).

Critical review of alephatic and aromatic chemistry stressing reaction conditions, mechanism, etc. Applications of electron theory to organic chemistry. Proof of structure by physical and chemical means. Intensive drill in problems of synthesis.

LECTURES: *Two hours per week for two semesters.*

TEXT BOOKS: Fuson, *Advanced Organic Chemistry* (Wiley).
Wheland, *Advanced Organic Chemistry* (Wiley).

REFERENCE BOOKS: Gilman, *Organic Chemistry* (Wiley).
Remick, *Electronic Interpretation of Organic Chemistry* (Wiley).
Watson, *Modern Theories of Organic Chemistry* (Oxford).
Wheland, *The Theory of Resonance* (Wiley).

Chemistry. 10. *Quantitative Analysis* (*full course*). A study of the theoretical principles underlying analytical methods. Gravimetric and volumetric techniques are applied to the determination of the main constituents in ores, alloys and other complex substances of commercial importance.

LECTURES: *One hour per week for one semester.*

LABORATORY: *Twelve hours per week for one semester.*

TEXT-BOOK: Kolthoff and Sandll, *Text-Book of Quantitative Inorganic Analysis.*

PREREQUISITE: *Chemistry 4.*

Chemistry. 11. *Kinetic Theory* (*half course*). Kinetic theory of gases; fundamental mathematical relation for velocity, collision frequency, viscoscity, thermal conductivity, diffusion; imperfect gases.

LECTURES: *One hour per week for two semesters.*

REFERENCE BOOK: Loeb, *Kinetic Theory of Gases* (McGraw-Hill).

PREREQUISITE: *Chemistry 7.*

Chemistry. 12. *Thermodynamics* (*full course*). First and second laws, entropy, free energy, fugacity and activity, partial molal quantities, Debye-Huckel theory

LECTURES: *Two hours per week for two semesters.*

REFERENCE BOOKS: Steiner, *Introduction to Chemical Thermodynamics* (McGraw-Hill).
Lewis-Randall, *Thermodynamics.*

PREREQUISITE: *Chemistry 7, Mathematics 5.*

***Chemistry.** 13. *Identification of Organic Compounds* (*full course*). Solubility, methods of determining the physical and chemical properties, and classification of organic compounds; preparation of derivatives; identification of several unknown; separation and identification of a mixture of organic compounds.

LECTURES: *One hour per week for two semesters.*

LABORATORY: *Three hours per week for the first semester. Six hours per week for the second semester.*

TEXT-BOOK: Shrine & Fuson, *Identification of Organic Compounds* (Wiley).

Chemistry. 14. This course includes a treatment of the theories of Inorganic Chemistry; and an elementary study of the Chemistry of carbohydrates, fats, proteins and vitamins available to pre-Medical and pre-Dental students. Course outlined for Senior Arts pre-Meds.

LECTURES: *One hour per week for two semesters.*

REFERENCE BOOKS: Chapin, Steiner, *Second Year College Chemistry* (Wiley).
Fieser & Fieser, *Organic Chemistry* (Heath).

***Chemistry.** 15. *Physical Chemistry* (*Advanced*) (*half Course*).
A Study of the Phase Rule.

REFERENCE BOOKS: Findlay, *Phase Rule* (Dover).
Glasstone, *Textbook of Physical Chemistry* (Van Nostrand).

LECTURES: *One hour per week for first semester.*

Chemistry. 16. *Surface and Colloid Chemistry* (*half course*). A study of the Physical Chemistry of surfaces and the properties of sols, gels, and emulsions.

LECTURES: *One hour per week for two semesters.*

REFERENCE BOOKS: Hartman, *Colloid Chemistry* (Houghton Mifflin).
Weiser, *Colloid Chemistry* (Wiley).
Adams, *Physics, Chemistry of Surfaces* (Oxford).

***Chemistry.** 17. *Atomic Structure and Valence Theories* (*half course*).

LECTURE: *One hour per week for two semesters.*

REFERENCE BOOKS: Pauling, *Nature of the Chemical Bond.*
Palmer: *Valency* (Cambridge).

***Chemistry.** 18. *Physical and Colloid Chemistry Laboratory* (*full course*) Advanced Physics — chemical methods.

LABORATORY: *Six hours per week for two semesters.*

TEXT-BOOK: Daniels, Matthew and Williams, *Experimental Physical Chemistry* (McGraw-Hill).

Chemistry. 19. *Organic Preparations* (*full course*). In the first part of this course the student is expected to perform some of the more difficult organic syntheses. In the second, the student will be required to work out his own methods of preparation.

LABORATORY: *Six hours per week for two semesters.*

TEXT BOOK: Cason & Rapoport, *Laboratory Text in Organic Chemistry* (Prentice-Hall).

REFERENCE BOOKS: Weygand, *Organic Preparation* (Interscience), *Organic Syntheses* (Wiley), *Organic Reactions* (Wiley).
Fieser, *Experiments in Organic Chemistry* (Heath).

***Chemistry.** 20. *Quantitative Analysis* (*Advanced*) (*half course*). Special (Wiley).

Methods of quantitative analysis: colorimetric analysis, Micro determination of carbon, hydrogen and nitrogen in organic compounds, pH measurements.

LECTURES: *One hour per week for one semester.*

LABORATORY: *Six hours per week for one semester.*

REFERENCE BOOKS: Nierderl and Nierderl, *Organic quantitative Micro Analysis* (Wiley).
Kolthoff and Sandell, *Quantitative Inorganic Analysis* (Wiley).
Kolthoff and Laitinen, *pH and Electro-titrations* (Wiley).

Chemistry. 21. *Biochemistry* (*full course*). A review of the chemistry of carbohydrates, lipids, proteins. A study of the following topics: Enzymes, foods, vitamins, digestion, detoxication, absorption, blood, the chemistry of Respiration, metabolism, biological oxidation, energy metabolism, chemistry of tissues, urine, hormones.

LECTURES: *Two hours per week for two semesters.*

LABORATORY: *Six hours per week for two semesters.*

TEXT-BOOKS: Mitchell, *Text-book of Biochemistry* (McGraw-Hill).
Harrow, *Laboratory Manual of Biochemistry* (Saunders).

REFERENCE BOOK: Harrow, *Text-book of Biochemistry* (Saunders).

***Chemistry.** 22. *Organic Chemistry* (*Adv. 2*) (*full course*). Optical and geometrical insomerism, carbohydrates, lipids, proteins, vitamins.

LECTURES: *Two hours per week for two semesters.*

TEXT-BOOKS: Gilman, *Organic Chemistry* (Wiley).
Honeyman, *Chemistry of Carbohydrates* (Oxford).
Ralston, *Fatty Acids and Their Derivatives* (Wiley).
Bloor, *Biochemistry of the Fatty Acids* (Reinhold).
Sahyun, *Outline of the Amino Acids and Proteins* (Reinhold).

***Chemistry.** 23. *Electrochemistry* (*half course*). Electrolytic conduction and electrolysis: Faraday's laws; specific and equivalent conductance and measurement of conductance; mobility and transport number; theory of strong electrolytes; thermodynamics of cells; electrode potentials; concentration cells, liquid junction potentials; overvoltage and polarization phenomena.

LECTURES: *Two hours per week for one semester.*

TEXT-BOOKS: Glasstone, *Introduction to Electrochemistry* (Van Nostrand).
Creighton, *Electrochemistry* (Wiley).

*Course not offered in 1953-54.

COMMERCIAL LAW

Laws of contracts, sale, agency, partnership, company law and negotiable instruments.

LECTURES: *Three hours a week for two semesters.*

DESCRIPTIVE GEOMETRY

Descriptive Geometry. This course is divided into two parts:

(a) Descriptive Geometry—Theory of Orthographic projection, planes and their traces, oblique planes solutions, dihedral angles and practical mining problems involving principles covered in the course.

(b) Engineering Problems—Geometrical constructions of eclipses, hyperboral cycloids, involutes, etc. Pictorial drawings including isometric oblique, perspective drawing. Development and intersections of surfaces. Free hand sketching.

LECTURES: *Two hours a week for two semesters.*

LABORATORY: *Four hours a week for two semesters.*

TEXT-BOOKS: French, *Engineering Drawing.*
W. G. Smith, *Practical Descriptive Geometry.*

ECONOMICS

Economics 1. Economic History.

(a) *The Medieval Period*, 600-1500: The Manorial System; The Guild System; Early Capitalism

(b) *Early Modern Times*, 1500-1776: The Continued Expansion of Capitalism; Mercantilism

(c) *Modern Times*, 1776 to the present day: The transition from earlier to later industrialism—the phases of the industrial revolution; the abolition of feudalism; agriculture and industry; the growth of population; the accumulation of capital; credit and banking; financial crises; business fluctuations, price movements, the gold standard; the transformation of domestic and international trade; the growth and disintegration of the world economy; the commercial policies of governments—the rise and decline of free trade, the new protectionism; labor movements; the growth of public utilities; the social policy of governments; the economics of war; post-war problems and policies.

Three hours a week for two semesters.

TEXT-BOOK: Herbert Heaton, *Economic History of Europe.*

REFERENCE BOOK: Bowden, Karpovich and Usher, *Economic History of Europe since 1750.*

Economics 2. Principles of Economics.

Meaning of the principal economic terms; causes of differences in productive power; forms of social institutions and economic activity-alternative forms of business; markets; demand, supply and price; produc; tion and costs; the problems of the business unit; competition, imperfect competition and monopoly; the distribution of income between individuals and classes; the causes of variation in wages, profit, interest and rent; the nature and function of money and banks; general variations of prices and output; elements of international trade; foreign exchanges; the economic activities of the State; economic systems; The National Income.

Three hours a week for two semesters

TEXT-BOOKS: Bowman and Bach, *Economic Analysis and Public Policy* (Prentice-Hall).
Morgan, *Introduction to Economics* (Prentice-Hall), Canada Year Book.

REFERENCE BOOKS: Kenneth E. Boulding, Economic Analysis (Harper).
Samuelson, *Principles of Economics* (McGraw-Hill).

Economics 3. Statistical Methods.

An introduction to statistical methods applied to Economics; Methods and Tabulation; Frequence Distributions; Measures of Central Tendency; Measures of Variability; Probability; the Normal Curve; Correlation; Reliability and Validity; Analysis of Time Series; Index Numbers

Three hours a week for two semesters

TEXT-BOOK: Norris Blair, *Elementary Statistics.*

Economics 4. Economic Theory.

More advanced study of theory: the theory of price and the theory of distribution; the theory of demand; the nature and application of indifference curves; cost analysis; the theory of imperfect competition; the theory of capital and interest; micro-economics (the theory of the firm) and macro-economics (problems of the economy taken as a whole); static and dynamic economics; Keynesian economics; business cycle theories; economic policy.

Three hours a week for two semesters.

TEXT-BOOK: K. E. Boulding, *Economic Analysis* (Harper).

REFERENCE BOOK: Stephen Enke, *Intermediate Economic Theory.*

Economics 5. Money and Banking.

Characteristics and Functions of Money; Monetary Systems; Banks and their Operations; Banking Systems in Canada, Great Britain and United States; The Volume of Bank Credit and its Control; Monetary Theories; Foreign Exchange and International Price Relationships; Monetary and Fiscal Policies; International Monetary Developments.

LECTURES: *Three hours a week for two semesters.*

TEXT-BOOK: Rollin G. Thomas, *Our Modern Banking and Monetary System* (Prentice-Hall).

REFERENCE BOOKS: Alvin H. Hansen, *Monetary Theory and Fiscal Policies* (McGraw-Hill).
E. L. Stewart Patterson, *Canadian Banking* (The Ryerson Press).
Milton L. Stokes, *The Bank of Canada* (Macmillan).

Economics 6. Labour Problems and Institutions.

The study of the Organized Labour Movements of Europe, United States and Canada; Forms and Structure of Labour Organizations, their Economic Problems; The Problems of Unemployment, Wages, Hours of Labour, Stability of Income and Employment, Full Employment, Social Security and a General Outline of the Problems of Industrial Relations. Emphasis will be placed on the Social teaching of the Church as contained chiefly in the Social Encyclicals.

Three hours a week for two semesters.

***Economics 7.** International Trade and Commercial Policies.

Historical and Economic Background of International Trade, the Theory of International Trade, Balance of Payments and its adjustment, International Capital Movements, Problems of Foreign Exchange, International Commercial Policies. International organizations dealing with Commercial Policy. Some practical aspects of International Trade.

LECTURES: *Three hours a week for two semesters.*
TEXT-BOOK: Horn, *International Trade, Principles and Practices* (1951). (Prentice-Hall).
REFERENCE BOOKS: Viner, *Studies in the Theory of International Trade* (Harper Brothers).
Readings in the Theory of International Trade (Blakiston).

*Course not given in 1953-54.

ENGLISH

English 1. *Precepts and Analysis:* Lectures on Literature, Art, Art and Morality, Style, Taste, and Literary Art, with special emphasis on Poetry, its nature, constitutive elements and varieties; to which is added a study of the literary art of selected works of poetry and prose calculated to heighten the student's appreciation, and to stimulate and guide his creative activity.

LECTURES: *Three per week, two semesters.*
TEXT-BOOKS: Connell, *A Study of Poetry.*
Blair & Gerber, *Better Reading, Vol. 2.*
Woods, Watts & Anderson, *The Literature of England (Vol. 2).*
Shakespeare, *Five Tragedies*, Pocket Book Edition.

English 2. *Survey of English Literature:* A Factual, Chronological Survey of English writers from the beginning to Cowley, against their intellectual and social backgrounds.

LECTURES: *Two hours per week, two semesters.*
TEXT-BOOK: Woods, Watts & Anderson, *The Literature of England (Vol. 1).*

English 4. *Literature and Composition.* A survey substantially the same as English 6 along with lectures on the fundamentals of literary art, and weekly exercises in remedial and functional English.

LECTURES: *Three hours per week, two semesters.*
TEXT-BOOKS: Woods, Watts & Anderson, *The Literature of England (Vol. 1).*
Shakespeare, *Five Tragedies*, Pocket Book edition.
Perrin, *Writer's Guide and Index to English.*

English 5. *The Art of Eloquence.* Lectures on the sources of success in Oratory, on Invention and Arrangement of Thought, on the Emotions and the Means adopted by the great orators to arouse or calm them; and

on the Types of Oratory, Forensic, Demonstrative and Sacred; to which is added a study of the Oratorical Art of selected works calculated to heighten the student's appreciation and stimulate and guide his creative activity. This course is closely integrated with the Latin and Greek courses of the student.

LECTURES: *Three hours per week, two semesters.*
TEXT-BOOKS: Perrin, *Writer's Guide and Index to English.*
Beardeley, *Practical Logic.*

English 6. *Survey of English Literature.* A continuation of English 2, from Cowley to Bridges.

LECTURES: *Two hours per week, one semester.*
TEXT-BOOK: Woods, Watts & Anderson, *The Literature of England.*

English 7. *English Drama.* A survey of English Drama from its liturgical beginnings as far as the modern period, with an intensive study of Shakesperean Tragedy.

LECTURES: *Two hours per week, one semester.*
TEXT-BOOKS: Woods, Watts & Anderson, *The Literature of England.*
Shakespeare, *Hamlet, King Lear* (ed. Hudson).
REFERENCE BOOK: Bradley, *Shakesperean Tragedy.*

English 9. *Literature and Composition.* A Survey substantially the same as English 2. To this is added analysis and practice of the fundamental elements of the Art of Eloquence.

LECTURES: *Three hours per week, two semesters.*
TEXT-BOOKS: Woods, Watts & Anderson, *The Literature of England.*
Perrin, *Writer's Guide and Index to English.*

English 10. *19th Century Thought.* A detailed study of representative 19th Century texts, made in close connection with the History of Philosophy courses.

LECTURES: *Two hours per week, two semesters.*

English 11. *Modern Literature.* A survey of modern English, Canadian and American literature.

LECTURES: *Two hours per week, two semesters.*

English 12. *Catholic Literary Revival.* A survey study of the Catholic literary revival.

LECTURES: *Two hours per week, two semesters.*
TEXT-BOOKS: Alexander: *The Catholic Literary Revival.*

English 13. *Report Writing.* This course, (presupposing that the student has acquired the habits of effective organization of matter and of clear

expression through his composition work in English 4 and English 9), teaches the mechanics only of report writing.

LECTURES: *One hour per week, one semester.*

TEXT-BOOKS: Perrin: *Writer's Guide and Index to English* (Neilson)

English 14. *Great Imaginative Works of the Western World.* This reading and discussion course is calculated to make the student realize the importance of literature in human living, and to make him aware of the existence of our traditional culture.

LECTURES: *Two hours per week, two semesters.*

ENGINEERING PROBLEMS

Engineering Problems. 1. Problem course designed primarily to afford practice in the solution of problems.

LECTURES: *One hour a week for two semesters.*

Engineering Problems. 2. Application of mathematics and mechanics to simple scientific and engineering problems, with special attention to mathematical and graphical presentation of ideas, including elementary graphical statics.

LECTURES: *Three hours a week for two semesters.*

Engineering Problems. 3. Application of physical and chemical principles to some fundamental problems in Chemical Engineering.

LECTURES: *One hour—two hours, problems, for one semester.*

FRENCH

French 1.

(a) 1. PHONETICS. Practical exercises in French pronunciation. The study of the formation of French vowel sounds according to the principles of the "Association Phonétique Internationale."

2. PRINCIPLES OF GRAMMAR. Study of the fundamental principles of French grammar; the use of the subjunctive, morphology and syntax.

3. PUBLIC SPEAKING. From his reading of French periodicals the student is required to prepare and deliver each week a talk on some subject of current or literary interest. General discussion by the class.

LECTURES: *One hour a week for two semesters.*

TEXT: *Local French Periodicals.*

(b) SURVEY AND STUDY OF LITERATURE.

1. Middle Ages: General survey of the period. *La Chanson de Roland* (Variété). *Contes du Moyen Age* (Variété). *Aucassin et Nicolette* (Heath). Villon: *Poésies Choisies.*

2. Molière: The dramatist. *Le Bourgeois Gentilhomme* (Class. Larousse). *Les Précieuses Ridicules.* (Class. Larousse).

3. Sixteenth Century: The Renaissance. Marot, *La Pléiade.* Ronsard: *Poésies Choisies.*

4. Eighteenth Century: General survey of the Period. Beaumarchais: *Le Barbier de Séville.* (Class. Larousse). Voltaire, Rousseau.

5. Nineteenth Century: Romanticism Chateaubriand: *Atala* (Class. Larousse). Hugo: *Hernani* (Nelson), Lamartine, Musset. Vigny: *Poésies Choisies.*

LECTURES: *Two hours a week for two semesters.*

REFERENCE TEXT: Calvet, *Histoire de Littérature*

French 2.

(a) PUBLIC SPEAKING. From his reading of French periodicals the student is required to prepare and deliver each week a talk on some subject of current or literary interest. General discussion by the class.

LECTURES: *One hour a week for two semesters.*

TEXT: *Local French Periodicals.*

(b) SURVEY AND STUDY OF LITERATURE.

Seventeenth Century: Classicism Corneille: *Le Cid* (Hachette).
La Fontaine: *Fables* (Choises)
Nineteenth Century: Realism. Daudet: *Tartarin de Tarascon.*
Maupassant: *Contes* (Variété).
Modern French Literature: General survey. Verlaine, Claudel, Ghéon Bloy, Bourget, Bazin, Mauriac.
Canadian Literature: General survey. Crémazie, Fréchette, Le May. Savard: *Menaud maître draveur.* Grignon: *Un homme et son péché.*

LECTURES: *Two hours a week for two semesters.*

REFERENCE TEXT: Badaire, *Précis de Littérature* (Heath).

French 3.

(a) PUBLIC SPEAKING. From his reading of French periodicals the student is required to prepare and deliver each week a talk on some subject of current or literary interest General discussion by the class.

LECTURES: *One hour a week for two semesters.*

TEXT: *Local French Periodicals.*

(b) LA FRANCE À TRAVERS LES SIÈCLES Part I (Macmillan).

LECTURES: *Two hours a week for two semesters.*

French 4.

(a) PUBLIC SPEAKING. From his reading of French periodicals the student is required to prepare and deliver each week a talk on some subject of current or literary interest. General discussion by the class.

LECTURES: *One hour a week for two semesters.*

TEXT: *Local French Periodicals*

(b) LA FRANCE À TRAVERS LES SIÈCLES Part II (Macmillan).

LECTURES: *Two hours a week for two semesters.*

French 5.

Pargment: *Beginning College French.* Part I (Holt).

LECTURES: *Two hours a week for two semesters.*

French 6.

Pargment: *Beginning College French.* Part II (Holt).

LECTURES: *Two hours a week for two semesters.*

FUNDAMENTAL LAW

This course is designed to serve as a means of acquainting the students with the basic principles and history of the legal system in force in the Province of Quebec and, for those proceeding to further studies, as an introduction to the study of Law.

The course will consist of a series of lectures given weekly throughout the year and touching upon the following topics:—

'Law', its significance; Roman Law (Institutes of Justinian), its scheme and relation to modern systems; Development of French Law, and Legal History of the Province of Quebec; Constitution of the Dominion of Canada; Law of the Province of Quebec and its outstanding characteristics.

No text-book is indicated, but throughout reference will be given to well-known works which the students will be called upon to consult.

GEOLOGY

Geology. 1. *General Geology.* Elements of mineralogy and petrology; physiography; dynamical and structural geology, historical geology.

LECTURES: *Two hours a week for two semesters.*
LABORATORY: *Two hours a week for two semesters.*
FIELD WORK: Five trips to points of interest in or near Montreal. October and early November.
TEXT-BOOK: *Physical Geology, 3d ed.* Longwell, Knopf, and Flint. (Wiley).

GREEK

Greek 1. *Authors:* Homer—*Odyssey.*
Plato—*Apologia.*
TEXTS: Schroder, *A Reading course in Homeric Greek.*
Second Year Book. (Loyola Press, Chicago).
Williamson, *Plato's Apology* (Macmillan).

Greek 2. Sophocles—*Oedipus Tyrannus.*
Selections from *Demosthenes.*
Three hours a week for two semesters.
TEXT-BOOKS: Campbell & Abbott, *Sophocles 9* (Clarendon).
Holmes, *De Corona* (Longmans).
Abbott & Matheson, *Philippics* (Clarendon).

HISTORY

History 1. *Western Civilization.*

This course covers the following topics: The Middle Ages, the Renaissance, Reformation and Wars of Religion; the Age of Enlightenment; the French Revolution; the Congress of Vienna; the Industrial Revolution; the New Imperialism.

LECTURES: *Three hours a week for two semesters.*
TEXT-BOOK: Hayes, Baldwin, Cole: *History of Europe* (Macmillan).

History 2. *Canadian History.*

Canadian History in its relation to the expansion of European civilization into the Western Hemisphere.

LECTURES: *Three hours a week for two semesters.*
TEXT-BOOKS: McInnis, *Canada, Political and Social History* (Rinehart).
Nevins & Commager, *The Pocket History of the United States* (Pocket Books).

History 3. *The Development of Political Thought.* Lectures and select documentary study. Prerequisite is History 1.

LECTURES: *Three hours a week for two semesters.*
TEXT-BOOK: Elliott-McDonald, *Western Political Heritage* (Prentice-Hall).

History 4. *History of Science.* The beginnings of science in the East. Egyptian science. Science in Greece and Rome. The "Dark" Ages. Hindu and Arabian Science. Medieval Science. Science in the Renaissance. The rise of Modern Science. Science and invention in the eighteenth, nineteenth and twentieth centuries.

LECTURES: *One hour a week for two semesters.*
TEXT-BOOK: Sedgwick and Tyler, *A Short History of Science.*
REFERENCE BOOKS: Moore, *History of Chemistry.*
Nordenskiold, *History of Biology.*

History 5. *History of Mathematics.*

LATIN

Latin 1. *Authors:* Cicero—*Selected Orations.*
Horace—*Selected Odes.*
Livy—*Selection from Book XXI.*
Three hours a week for two semesters.
TEXT-BOOKS: Allen & Greenough, *Select Orations of Cicero* (Ginn).
Bennett & Rolfe. Horace, *Complete Works* (Allyn Bacon).
Melhuish, *Livy XXI* (Macmillan).

Latin 2. *Prose Composition*—Bradley's Arnold, Chap. 1-34.
Two hours a week for two semesters.
TEXT-BOOK: Bradley's Arnold, *Latin Prose Composition* (Longmans).

Latin 3. *Authors*: Cicero—*Pro Lege Manilia.*
Pro Milone.
Horace—*Selected Satires & Epistles.*
Tacitus—*Agricola.*
TEXT-BOOKS: Allen & Greenough.
Bennett & Rolfe.
Church & Brodribb, *The Agricola of Tacitus* (Macmillan).

Latin 4. *Prose Composition.* Bradley's Arnold, Chap. 35-67.
TEXT-BOOK: Bradley's Arnold.

MAPPING

Mapping. Plotting from transit-and-chain and stadia notes taken in Summer School 1 in Surveying; earthwork calculations; inking, tinting and finishing map, with title, legend, north-point and border.

LABORATORY: *Six hours a week for two semesters.*

MATERIALS OF ENGINEERING

Materials of Engineering. An account of the sources, winning, general properties, trade practices and economics of both non-metallic and metallic materials and their products, used in engineering construction and in the manufacturing industries, with emphasis on those not discussed in more detail in subsequent courses.

LECTURES: *One hour a week for two semesters.*

MATHEMATICS

Mathematics. 1a. *Plane Trigonometry.* The trigonometric functions and solution of right-angled triangles. Measurement of angles, identical relationships among the functions, trigonometric equations. Graphs of the trigonometric functions. Solution of triangles. Logarithms.

LECTURES: *Three hours a week for one semester.*

TEXT-BOOK: Tate, *Elementary Math. Analysis* (Pitman).

Mathematics. 1b. *Algebra and Graphs.* Linear and quadratic functions and their graphs. Ratio and proportion. The progressions. Permutations and combinations. The binomial theorem. Mathematics of investment.

LECTURES: *Three hours a week for one semester.*

TEXT-BOOK: Tate, *Elementary Math. Analysis* (Pitman).

Mathematics. 2a. *Plane Trigonometry.* The trigonometric functions and solution of right-angled triangles. Measurement of angles, identical relations among the functions and trigonometric equations. Functions of compound angles, transformations of products and sums. Logarithms. Solution of triangles. Graphs of the trigonometric functions, general solutions of trigonometric equations and inverse functions.

LECTURES: *Three hours a week for one semester.*

TEXT-BOOK: Hall and Knight. *Elementary Trigonometry.*

Mathematics. 2b. *Analytic Geometry.* An elementary study of the straight line and circle, with an introduction to conic sections.

LECTURES: *Three hours a week for one semester.*

TEXT-BOOK: Smith, Salkover, and Justice. *Analytic Geometry.*

Mathematics. 3. *Algebra.* Linear and quadratic functions. Polynomials and algebraic equations. Rational functions, ratio and proportion and systems of equations. Series of numbers, the progressions. Permutations and combinations. Mathematical induction. The binomial theorem and approximations. Mathematics of investment.

LECTURES: *Three hours a week for two semesters.*

TEXT-BOOK: Miller and Rourke, *An Advanced Course in Algebra.*

Mathematics. 4. *Fundamentals of Mathematics.* A non-technical "finishing course" in mathematics, designed to give the student a better appreciation and understanding of the mathematics he has done and a view of the entire field of mathematical thought. The following topics, among others, are treated:—Mathematics and logic, postulational thinking, scientific theories. The evolution of the number system. The logic of algebra. The algebra of sets and consequences. Impossibilities and unsolved problems. Analytic geometry of n-dimensions. Differential and egniratl calculus. Probability and statistics. Mathematical induction. Transfinite numbers. Euclidean and non-Euclidean geometries. Theory of groups.

LECTURES: *Two hours a week for two semesters.*

TEXT-BOOK: Courant and Robbins, *What is Mathematics.*

REFERENCE BOOKS: Richardson, *Fundamentals of Mathematics.*
Merriman, *To Discover Mathematics.*

Mathematics. 5 *Calculus.* A first course aiming to cover, as completely as possible the ordinary techniques and applications of calculus. It includes the following topics:—Limits of functions. Differentiation and integration of polynomials with applications. The Cauchy integral. Differentiation of algebraic and elementary transcendental functions with applications to kinematics, differential geometry and the solution of equations. Methods of integration and uses of the integral in the calculation of geometric and mechanical quantities. Approximate integration. Theorems concerning integration and line integrals. Power series, Taylor's series, the exponential, circular and hyperbolic functions. Partial differentiation, line integrals, multiple integration. Introductory differential equations.

LECTURES: *Three hours a week for two semesters.*

TEXT-BOOK: Middlemiss, *Calculus.*

REFERENCE BOOKS: Courant, *Differential and Integral Calculus.*
Goursat-Hedrick, *Mathematical Analysis*, Vol. I.
Hardy, *Integration of Functions of a Single Variable*

Mathematics. 6a. *Analytic Geometry of Two and Three Dimensions.* This course, which begins with conic sections, embraces the chief topics of plane and space geometry that are of common interest to both the science and the engineering student. It includes the following:—The principal properties of the parabola, the ellipse, the hyperbola. Coordinate transformations and polar coordinates. Method of distinguishing type of conic from its unreduced equation. Some "higher" plane curves. Parametric equations. Cartesian spherical and cylindrical coordinates in space. Equations of lines, planes, cylinders, cones and surfaces of revolution. An introduction to the study of quadric surfaces.

LECTURES: *Three hours a week for one semester.*
TEXT-BOOK: Smith, Salkover and Justice, *Analytic Geometry.*
REFERENCE BOOKS: Eisenhart, *Coordinate Geometry.*
R. J. T. Bell, *Coordinate Geometry of Three Dimensions.*

Mathematics. 6b. *Analytic Geometry of Conics and Quadrics.* A continuation of Mathematics 6a, discussing further properties of conic sections and quadric surfaces and including a complete discrimination of the second degree equations.

LECTURES: *Three hours a week for one semester.*
TEXT-BOOKS: Smith, Salkover and Justice, *Analytic Geometry.*
A. Albert, *Solid Analytic Geometry* (McGraw-Hill).
REFERENCE BOOKS: Same as for Mathematics 6a, and also
Smith, *Conic Sections.*
McCrea, *Analytic Geometry of Three Dimensions.*

Mathematics. 7a. *Algebra.* This course aims at an accurate working familiarity with the following topics:—Real numbers, decimal approximations and abbreviated methods of computation. Inequalities. Complex numbers. Formal and functional properties of polynomials, polynomial equations. Rational functions.

LECTURES: *Three hours a week for one semester.*

REFERENCE BOOKS: Knebelman and Thomas, *Principles of College Algebra.*
Lovitt, *Elementary Theory of Equations.*
Barnard and Child, *Higher Algebra.*
Whittaker and Robinson, *The Calculus of Observations.*

Mathematics. 7b. Algebra. A continuation of Mathematics 7a, embracing: Solution of cubic and quartic equations by radicals. Systems of linear equations, determinants, matrices, linear transformations (projecture and complex). Symmetric functions of the roots of an equation. Approximation of irrational numbers by rationals, impossibility of angle trisection by ruler and compass. Sequences, limits, summation of series.

LECTURES: *Three hours a week for one semester.*

REFERENCE BOOKS: Courant and Robbins: *What is Mathematics?*
Lovitt, *Elementary Theory of Equations.*
Barrand and Child, *Higher Algebra.*

Mathematics. 8a. *Algebra and Spherical Trigonometry.* This course comprises a practical treatment of spherical trigonometry and of the topics of algebra which are necessary for the study of differential equations and are not adequately treated in Maths. 3.

LECTURES: *Three hours a week for one semester.*

TEXT-BOOKS: Hart and Hart, *Solid Geometry and Spherical Trigonometry.*
Sokolnikoff, *Higher Mathematics for Engineers and Physicists.*

REFERENCE BOOKS: As in Maths. 7a.

Mathematics. 8b. *Algebra and Calculus.* A continuation of Maths. 8a and Maths. 5.

LECTURES: *Three hours a week for one semester.*

TEXT-BOOK: Sokolnikoff, *Higher Mathematics for Engineers and Physicists.*

Mathematics. 9. *Ordinary Differential Equations.* A first course with numerous applications to problems of physics, chemistry, mathematics, and engineering.

LECTURES: *Three hours a week for one semester.*
TEXT-BOOK: Morris & Brown, *Differential Equations.* (Prentice Hall).
REFERENCE BOOK: Agnew, *Differential Equations.*

Mathematics. 10. *Functions of a Complex Variable.*

LECTURES: *Three hours a week for two semesters.*
TEXT-BOOKS: Churchill, *Introduction to Complex Variables and Applications.*
Titchmarsh, *The Theory of Functions.*

Mathematics. 11. *Infinite Series and Integrals.* A study of the infinite processes used in applied mathematics with a view to securing an effective manipulation.

LECTURES: *Three hours a week for the first semester.*
REFERENCE BOOKS: Courant, *Differential and Integral Calculus.*
Sokolnikoff, *Advanced Calculus.*
Knopp, *Theory and Application of Infinite Series.*

Mathematics. 12. *Functions of a real Variable.* This course continues Maths. 11 for students of pure mathematics.

LECTURES: *Three hours a week for the second semester.*
REFERENCE BOOKS: Hardy, *Pure Mathematics.*
Goursat-Hedrick, *Mathematical Analysis.*

Mathematics. 13. *Methods of Advanced Calculus.* This course continued Maths. 11, for students of physics and engineering physics.

LECTURES: *Three hours a week for the second semester.*
REFERENCE BOOK: Franklin, *Methods of Advanced Calculus.*

Mathematics. 14. *Problems of Advanced Calculus.* A series of interesting and difficult mathematical assignments intended to integrate the students' knowledge of algebra, analytic geometry and advanced calculus.

LECTURES AND LABORATORY: *Three hours a week for two semesters.*

Mathematics. 15. *Modern Geometry.* The emphasis in this course will be placed on insight into the various mathematical relations which underlie modern geometries.

LECTURES: *Three hours a week for one semester.*

REFERENCE BOOKS: Coxeter, *Non-Euclidean Geometry.*
Robinson, *The Foundation of Geometry.*

Mathematics. 16. *Number Theory.* An introduction to the problems and methods of "elementary" and analytic number theory.

LECTURES: *Three hours a week for one semester.*

CHIEF REFERENCE BOOK: Hardy and Wright, *The Theory of Numbers.*

Mathematics 17. *Theory of Interest.* Simple and compound interest; discount; annuities certain; sinking funds; bonds; elementary interpolation.

LECTURES: *Three hours a week for one semester.*

TEXT-BOOK: H. Tate, *Mathematical Theory of Interest* (Pitman).

MECHANICS

Mechanics. 1. Elementary dynamics of particles; rectilinear motion; projectiles; the inclined plane and pulleys; impulse, impact and momentum of streams of particles; energy; statics, including equilibrium of concurrent and non concurrent co-planar forces; the funicular polygon; problems of simple beams and frameworks, with stress analysis by the method of sections.

LECTURES: *Two hours a week for two semesters.*

Mechanics. 2. Equilibrium of forces; friction; graphical statics; bending moment and shear; analytical statics; relative velocities; variable rectilinear and curvilinear motion; simple harmonic motion with applications to pendulums and springs; kinetic energy; liquid pressure. Methods of the calculus are used freely.

LECTURES: *Two hours a week for two semesters.*

TEXT-BOOK: Poorman, *Applied Mechanics* (McGraw-Hill).

Mechanics. 3. *Introduction to Mechanics and hydrostatics.* Vector quantities, plane Kinematics, particle dynamics, centres of mass, plane statics, angle and cone of friction, belt friction, elasticity, simple harmonic motion, moments of inertia, plane motion of a rigid body, flexure and torsion of beams, instantaneous centres of rotation, virtual work, stationary potential energy, flexible chains and cables, gravitation, central orbits. Notion of a perfect fluid, pressure and transmission of pressure in a liquid at rest, fluids at rest under gravity, resultant pressure on a plane area, centre of pressure, general equations of equilibrium of a fluid, resultant pressure on curved surfaces, equilibrium of floating bodies, stability of equilibrium of floating bodies.

LECTURES: *Three hours per week for two semesters.*

TEXT-BOOK: Synge & Griffith, *Principles of Mechanis* (McGraw-Hill).

REFERENCE BOOKS: Loney, *Statics and Dynamics;* Lamb, *Statics;* Routh, *Dynamics of a Particle.*

Mechanics. 4. *Mechanics in Space.* Vector theory, statics in space Kinetic energy and angular momentum, methods of space dynamics pendulum motion using Jacobian elliptic functions, motion of a rigid body with a fixed point, general motion of a rigid body, Lagranges equations.

LECTURES: *Three hours a week for two semesters.*

TEXT-BOOK: Synge and Griffith, *Principles of Mechanics.*

REFERENCE BOOKS: Routh, *Elementary Rigid Dynamics;* Whittaker, *Analytical Dynamics;* Lamb, *Dynamics.*

Mechanics. 5. First term of this course is the same as the first term of Mechanics 3. The matter of the second term is made up of selected topics from Mathematics and Classical Mechanics which equip Chemistry students for the study of Quantum Theory.

LECTURES: *Three hours a week for two semesters.*

MECHANICAL DRAWING

Mechanical Drawing. 1. Selection and use of drafting instruments and materials; lettering, conventional practices and symbols, sectional views and methods of reproduction.

LABORATORY: *Three hours a week for two semesters.*

TEXT-BOOK: French, *Engineering Drawing.*

Mechanical Drawing. 2. Engineering drafting room procedure and technique in the production of working drawings of machinery.

LABORATORY: *Three hours a week for two semesters.*

TEXT-BOOK: French, *Engineering Drawing.*

MECHANICS OF MACHINES

Mechanics of Machines. Constrained motion; instant centers; centrodes; analysis and classification of simple mechanisms, including the quadric-crank, the slider-crank and wheel trains; design of involute gear teeth; belts and flexible couplings; cam design.

LECTURES: *One hour a week for one semester.*

LABORATORY: *Two hours a week for one semester.*

MINERALOGY

Mineralogy 1.

Lectures in the first part of the course deal with the physical properties and chemical composition of minerals, and with crystallography. The more important ores, industrial minerals, and rock-forming minerals are then described, with particular emphasis in the case of economic minerals, on uses and sources of supply.

LECTURES: *Two hours per week for two semesters.*

TEXT-BOOK: Kraus, Hunt and Ramsdell, *Mineralogy* (McGraw-Hill).

Mineralogy 2. *Determinative Mineralogy.*

Instruction is given in methods for the determination of the constituents of minerals by blowpipe analysis and related chemical tests. These tests and general physical characteristics are then applied in the identification of some 150 mineral species.

LABORATORY: *Three hours per week for one semester.*

Mineralogy 3. *Mine Projections.*

The use of descriptive geometry as applied to mining problems.

LECTURES: *Three hours per week for one semester.*

PHILOSOPHY

Philosophy 1. *Metaphysics.*

This science is the one natural wisdom, and has as its object the understanding of reality in its ultimate intelligibility. Since reality includes God and the physical universe, the ultimate questions of Theodicy and Cosmology find their place here. The problem of the one and the many, limitation, causality, substance and accident, the analogy of being, the nature of ontological truth, good and evil are discussed, and the various opinions are considered before the solution is proposed.

LECTURES: *Six hours a week for one semester.*
TEXT-BOOKS: Renard, *Philosophy of Being* (Bruce).
Pegis, *Introduction to St. Thomas Aquinas* (Random).

Philosophy 11. *Metaphysics.*

This course is in substance almost equivalent to Philosophy 1 but has one per week fewer lectures.

LECTURES: *Five hours per week for one semester.*
TEXT-BOOKS: Renard, *Philosophy of Being* (Bruce)
Pegis, *Introduction to St. Thomas Aquinas* (Random).

Philosophy 2. *Psychology.*

The Philosophical study of Man. This course treats of the unity of Man, his vegetative life, external and internal sensation, intellect, the nature of knowledge; sense appetite, the will, habits, the human soul; the nature, origin and destiny of man.

LECTURES: *Six hours a week for one semester.*
TEXT-BOOKS: Klubertanz, *The Philosophy of Human Nature.*
Pegis, *Introduction to St. Thomas Aquinas.*

Philosophy 21. *Psychology.*

This course is in substance almost equivalent to Philosophy 2 but has one per week fewer lectures.

LECTURES: *Five hours a week for one semester.*
TEXT-BOOKS: Klubertanz, *The Philosophy of Human Nature.*
Pegis, *Introduction to St. Thomas Aquinas.*

Philosophy 3. *Logic.*

The science which directs the operations of the intellect in the attainment of truth. This includes Dialectics, which treats of the correct ways of thinking, and Epistemology, which discusses the nature of logical truth and the conditions for its attainment. Special attention is given to Scepticism, Idealism, and the theory of the Relativity of Knowledge.

LECTURES: *Two hours a week for two semesters.*
TEXT-BOOK: Walsh, *Logic.*
REFERENCE BOOK: Cunningham, *Epistemology.*

Philosophy 31. *Logic.*

This course covers the matter of Philosophy 3 but in a more concise way.

LECTURES: *Two hours per week for one semester.*
TEXT-BOOK: John A. Oesterle, Ph.D. *Logic* (Prentice-Hall, Inc.)

Philosophy. 4. *Ethics.*

General Ethics. In this course are treated the subjects belonging to general theory; the nature of the moral act, the distinction between moral good and moral evil, moral habits, natural and positive moral law, conscience, rights and duties.

Applied Ethics. The application of the general principles of ethics to particular, individual and social rights and obligations; the right to property, life, honour; the rights and obligations of domestic society; marriage and divorce, civil society, its nature and forms; the rights of civil authority; Church and State; the ethics of international relations; peace and war.

LECTURES: *Three hours a week for first semester.*
Six hours a week for second semester.
TEXT-BOOKS: *Code of Social Principles.*
Higgins, *Man as Man; Five Great Encyclicals.*
Leibell, *Readings in Ethics.*

Philosophy. 5. *History of Ancient Greek Philosophy.* In ancient Greek Philosophy attention is directed primarily to the teachings of Socrates, Plato and Aristotle and to the systems of Stoicism and Epicureanism. Plotinus is taken as representative of the Alexandrian movement, and St. Augustine is studied as the most conspicuous example of early Christian philosopher.

LECTURES: *Two hours a week for two semesters.*
TEXT-BOOK: Glenn, *History of Philosophy.*

Philosophy. 6. *History of Mediaeval and Modern Philosophy.* In the study of mediaeval philosophy attention is centred on the origin and development of Scholastic Philosophy and on the system of St. Thomas as the most complete synthesis of mediaeval thought. In the division of modern philosophy, Descartes, Locke, Hume, Kant, Hegal, Comte and Spencer are taken for special study. Among present-day tendencies, the revival of Scholasticism and the trend towards realism are noticed.

LECTURES: *Two hours a week for two semesters.*
TEXT-BOOK: Glenn, *History of Philosophy.*

PHYSICS

Physics. 1. *General College Physics.* An introductory course covering the elements of mechanics, sound, heat, light and electricity. The content of the subject matter is about that of *College Physics*, by Mendenhall, Eve and Keys.

LECTURES: *Four hours a week for two semesters.*

LABORATORY: *Three hours a week for two semesters.*

TEXT-BOOK: Sears & Zemansky, *College Physics* (Addition-Wesley).

LABORATORY MANUAL: Keys, Watson and McPherson, *Experimental Physics.*

Physics. 2. *A more advanced course in heat, light and sound,* but not requiring a knowledge of more than elementary mathematics.

LECTURES: *Three hours a week for two semesters.*

LABORATORY: *Two hours a week for two semesters.*

TEXT-BOOKS: Marshall, *Elementary Theory of Heat* (Second term).
Marshall, *Light* (First term).
Marshall, *Sound* (First term).

Physics. 3. *Electricity and Magnetism.* A theoretical and experimental course covering magnetism, electrostatics, current electricity, electromagnetic induction, electrodynamics, simple circuits and elementary electronics.

LECTURES: *Three hours a week for two semesters.*

LABORATORY: *Three hours a week for two semesters.*

TEXT-BOOK: Sears, *Electricity and Magnetism.*

Physics. 4. *Theory of Measurements.* A training in accuracy, approximate methods and probable error of calculations. A weekly assignment of problems.

LECTURES: *One hour a week for two semesters.*

Physics. 5. *Advanced Course in Heat.* Kinetic theory of gases, perfect gas law; Maxwells Distribution law; Van der Waals equation; transport phenomena in gases; viscosity, thermal conductivity, diffusion; the First Law of Thermodynamics; methods of determining J. Carnot Cycle; Kelvin Scale; the Second Law of Thermo-dynamics; Shaw's Jacobian analysis and introduction to the thermodynamic variable. Application: latent heat equations; surface tension; e.m.f. of chemical cells; thermo-electric phenomena; thermionic emission; tension and compression of rods.

LECTURES: *Two hours a week for two semesters.*

TEXT-BOOK: Sears, *Introduction to Thermodynamics.*

REFERENCE BOOKS: Kiefer and Stuart, *Engineering Thermodynamics.*
Lewis and Randall, *Thermodynamics.*

Physics. 6. *Electron Physics.* An introduction to the fundamentals of electronics, with emphasis on practical applications. Motion of ions and electrons in electric and magnetic fields, charge and mass of electrons, thermionic emission, photo-electricity, electron optics, atomic structure,

electron, conduction in metals. Theory of apparatus emphasized (e.g., oscillographs, photo-cells, magnetrons, electron microscopes, etc.).

LECTURES: *Two hours a week for one semestsr.*

REFERENCE BOOKS: Millman and Seely, *Electronics* (McGraw-Hill); Crowther, *Ions, Electrons and Ionizing Radiations* (Arnold).

Applied Electronics by E. E. Staff of M.I.Y. (Wiley).

Physics. 7. *Electromagnetic Theory.* Vector Calculus; vector treatment of electro statics and magnetostatics; Maxwell's equations; boundary conditions; Poynting vector; electric waves; reflection and refraction of plane waves; propagation of waves in metals and dispersive media; wave guides; radiation from a dipole and from an antenna.

LECTURES: *One hour a week for two semesters.*

REFERENCE BOOKS: Sarbacher and Edson, *Hyper and Ultra High Frequency Engineering* (Wiley).

Harnwell, *Principles of Electricity and Electromagnetism* McGraw-Hill).

Pierce: *Electric Oscillations and Electric waves* (McGraw-Hill).
Abraham and Becker, *The Classical Theory of Electricity and Magnetism* (Blackie and Son).
Skilling, *Fundamentals of Electric Waves* (Wiley).

Physics. 8. *Electrical Measurements.* D-C instruments and measurements, complete galvanometer theory, instrument calibration; A-C circuit theory, operational methods, applications; measurements of power at audio and radio frequencies; measurements with Lecher wires; electronic devices, theory of circuits; elementary, radio engineering; construction and testing of simple electrical devices; absolute measurements.

LECTURES: *Two hours a week for two semesters.*

LABORATORY: *Four hours a week for two semesters.*

REFERENCE BOOKS: Laws, *Electrical Measurements* (McGraw-Hill).
Hague. *Alternating Current Bridge Methods* (Pitman).

Campbell and Childs. *The Measurement of Conductance, Capacitance and Frequency* (Macmillan). Reich, *Theory and Application of Electron Tubes* (McGraw-Hill).

Lerman, *Radio Engineers' Handbook* (McGraw-Hill).

Physics. 9. D/C Machines. An elementary course in electrical engineering.

LECTURES: *Two hours a week for one semester.*

Physics. 10. *Properties of Matter.* Gravitation constant, acceleration due to gravity, determination of moments of inertia, bifilar suspension, compound and ballistic pendulum, elasticity and determination of elastic moduli, viscosity of liquids and gases, surface tension.

LECTURES: *One hour a week for two semesterss.*

TEXT: Newman and Searle *General Properties of Matter* (E. Benn. Co.).

REFERENCE BOOK: Champion and Davy, *Properties of Matter.* (Blackie).

PUBLIC SPEAKING

The work in this department consists in courses for vocal drill and expression, with exercises in good carriage and gesture, interpretation and delivery. Students are required to speak before the class a certain number of times each term. A gold medal is awarded annually to the student who delivers the best declamation in a public contest open to all the students of the College Course.

This work is carried on throughout the four years of the Arts Course. The last two years deal especially with debating, debates being conducted intra-murally and in competition with outside teams.

LECTURE: *One hour a week, two semesters.*

SPANISH

Spanish 1. Introductory course in Spanish grammar and elementary Spanish reading.

LECTURES: *Three hours a week for two semesters.*

TEXT-BOOKS: Keniston, *Learning Spanish* (Holt).
Grismer & Olmsted. *A México por Automôvil.*

Spanish 2. Readings from modern Spanish and Spanish-American authors. Spanish Composition.

LECTURES: *Three hours a week for two semesters.*

TEXT-BOOKS: Tarr and Centeno, *Spanish Review Grammar* (Appleton Century Crofts).
Ashburn, *Selected Spanish Short Stories* (Crowell).

SOCIOLOGY

Sociology. 1. (1) *The Study of Sociology:* The Nature and Development of Sociology, The Catholic Viewpoint in Sociology.

(2) *Man's Biological Heritage:* Individual Heredity, Heredity and Environment, Racial Heredity, Race Mixture and Race Prejudice.

(3) *Man's Cultural Heritage:* Culture and Culture Change, Early Prehistoric Backgrounds, The Dawn of Civilization, Culture of Primitives.

(4) *Man's Social Nature:* The Physical Basis of Personality, Group Interactions and Personality, Major Personality Maladjustments, Minor Personality Maladjustments.

(5) *Collective Behaviour:* The Basis for the Social Processes; Competition, Conflict and Cooperation; Accommodation, Assimilation and Stratification; Social Control.

(6) *The Community:* Human Ecology; Population and Migration; Types of Communities: Urban and Rural.

(7) *Social Institutions:* Economic Institutions, Governmental Institutions, Educational Institutions, Religious Institutions, The Family.

(8) *Social Maladjustments:* Social Disorganization; Poverty and Dependency; Crime and Punishment.

Two hours a week for two semesters.

TEXT-BOOK: R. W. Murray, C.S.C.: *Introductory Sociology*

SUMMER SCHOOL

Summer School. A course in Mechanical Drawing and Machine Shop Work for a period of four weeks.

SUMMER ESSAY

Students entering the Senior Year of the Engineering Course must submit an essay. The most suitable subject for the essay is a topic drawn from the experience of the student during his summer work, but a similar topic connected with any engineering, scientific or industrial work with which he is familiar is acceptable. This essay should be approximately two thousand words in length and should be handed in not later than October 3rd, 1949.

SURVEYING

Surveying 1. Units of measurements; the chain-uses, errors, corrections and compensation; the level — types and limitations; differential and profile levelling; contour surveying; the transit — the vernier, horizontal and vertical angles, deflections, double deflections, azimuths, traverses and meridians; the compass — bearings, magnetic variation and declination and dip.

LECTURES: *Two hours per week for one semester.*

REFERENCE BOOKS: Davis and Foote, *Surveying* (McGraw-Hill), or Breed, *Surveying* (Wiley)

Surveying 2. *Field Work.* Practice in chaining and taping; use of the level and of the transit; complete survey of a tract of land.

Four Weeks' Summer School course in field work.

Surveying 3. Adjustments of level and of transit: theory and use of the polar planimeter; latitudes and departures: areas; plotting co-ordinates; partition of land; missing sides; stadia surveying; cross-sections, grids and slope stakes; circular curves, vertical curves.

LECTURES: *Two hours per week for two semesters.*

REFERENCE BOOK: David and Foote, *Surveying* (McGraw-Hill).

Surveying 4. *Field Work.* Preliminary railway or highway survey with transit, profile and topography parties; plane table, hand level and stadia; spiral curves; cross-sectional simple triangulation networks; reciprocal levelling; soundings; current-meter surveys; introduction to mine surveying; small geological survey with Brunton compass and chain; astronomical observations.

Four weeks' Summer School.

THEOLOGY

Theology. 1. *Religion in general;* revelation in general; how to recognize divine revelation; documents of Christian Revelation. The Evangelists. The Gospels are genuine, trustworthy, complete.

Christ publicly claimed to be a prophet, the Messiah, Son of God, haing the nature, knowledge, activity and powers of God. He was not Himself deceived, nor did he deceive others. His prophecies and miracles. His resurrection a proof of His mission. Other testimony to Christ's divinity: the miracles of the Apostles; the Martyrs; rapid spread of the Church. Objections.

The Church of Christ. He established an infallible teaching-body with power to rule and sanctify all men. To Peter and to his successors He promised, and gave, the primacy of jurisdiction. Christ directly established His church as a religious society, necessary for our salvation, with perpetual and unchangeable power to teach and rule.

His Church is Apostolic, One, Universal, Holy. The Catholic Church alone possesses all four marks; no other Church possesses even one of them. The Roman Pontiff is the successor of St. Peter. He is, therefore, infallible. Objections.

LECTURES: *Two periods a week.*

TEXT-BOOK: J. Fernan, *Prophet and King*, Jesuit Educational Association.

Theology. 2. *The nature and obligation of faith.* The rule of faith. The subject matter of faith. The existence of God. His attributes. The Holy Trinity. God the Creator of all things. How the world was created. Evolution. The purpose of Creation.

The descent of man. Original Justice. The fall of man. Our share in the primeval fall. Original sin. The Immaculate Conception. The nature and origin of the human soul. The existence and nature of the angels. The particular and general judgments. The Four Last Things.

LECTURES: *Two periods a week.*

TEXT-BOOK: *"God and Creation"*. Thos. Chetwood, S.J.

Theology. 3. *Christology.* In Christ, true man, there is but one person. His human intellect and will. He redeemed us from sin. His merits. The worship of Christ. The glories of Mary. Veneration of relics and images.

Soteriology. The redemption applied to man. The existence and nature of actual grace. Man's natural capacity for good. The necessity of actual grace for salutary acts. The power of concupiscence. God's will to save men. Efficacious Grace. Justification and sanctifying grace.

LECTURES: *Two periods a week.*

TEXT-BOOK: *Christ, The Redeemer*, by Chas. Herzog, S.J.

Theology. 4. *The Sacraments.* Supernatural Life. The Sacraments are signs of Grace. Sacraments of the dead and of the living. Baptism: its effects; its necessity. Confirmation: its effects; the obligation to receive Confirmation. The Holy Eucharist: transubstantiation: Holy Communion under one kind. The Mass: a true sacrifice; an application of the fruits of the sacrifice of the Cross.

The Sacraments. Penance: mortal and venial sin; repentance; perfect contrition; the power of forgiving sins; jurisdiction; indulgences. Extreme Unction; sacramental effects; bodily health sometimes restored. Holy Orders; the Priesthood; other sacred Orders; Diaconate; Subdiaconate and Minor Orders. Matrimony: primary and secondary ends; unity; indissolubility; the Pauline Privilege; impediments; marriage consent; the Nuptial Mass.

LECTURES: *Two periods a week.*

TEXT-BOOK: *Channels of Redemption*, by Chas. Herzog, S.J.

FEES

(Applicable to residents of Canada or the United States)

TUITION

Arts (General course)		
Freshman	$43.75 per quarter	$175.00 per year
Sophomore	46.25 " "	185.00 " "
Junior	50.00 " "	200.00 " "
Senior	50.00 " "	200.00 " "
Arts (with pre-Medical subjects)		
Freshman	$43.75 per quarter	$175.00 per year
Sophomore	50.00 " "	200.00 " "
Junior	62.50 " "	250.00 " "
Senior	62.50 " "	250.00 " "
Science and Engineering		
Freshman	$60 00 per quarter	$240.00 per year
Sophomore	62.50 " "	250.00 " "
Junior	62.50 " "	250.00 " "
Senior	62.50 " "	250.00 " "
Commerce		
Freshman	$43.75 per quarter	$175.00 per year
Sophomore	46.25 " "	185.00 " "
Junior	50.00 " "	200.00 " "
Senior	50.00 " "	200.00 " "

RESIDENCE

Room	$200.00
Board	420.00

Special

Registration Fee (payable on first entrance only)	$ 5.00
Penalty Fee for late registration (any student)	5.00
Athletic Fee	10.00
Sundry Fee	10.00
Surveying 2, Summer Course	35.00
Laboratory Breakage Deposits (returnable)	
Arts (pre-Medical)—	
Sophomore	5.00
Junior and Senior	10.00
Science and Engineering—	
Freshman	10.00
Sophomore, Junior and Senior Chemistry	20.00
Sophomore, Junior and Senior Physics	15.00
Sophomore, Junior and Senior Engineering	15.00

FEES Cont.

Supplemental examinations, each	$ 5.00
Supplemental examinations on other than assigned days	10.00
Guarantee deposit from resident students (returnable)	25.00
Resident students staying during the Christmas holidays, per day	3.00
Infirmary, per day	3.00
Graduation Fee:	
Arts students	$ 10.00
Science and Engineering students	18.00
Commerce students	18.00

REMARKS

1. No deduction is made for a continuous absence less than a quarter.
2. No room will be reserved for any student unless he makes a deposit of $50.00 against the room fee. This deposit will be returned if and only if the application for the room is cancelled by September 1st. If a room is occupied at the beginning of a semester it must be paid for for the entire semester.
3. No student will be promoted from one class to another, or receive any degree, diploma or certificate whatsoever, until his financial accounts have been previously and satisfactorily settled.
4. The College will pay no debt contracted by the students unless a deposit is left with the Bursar. Large sums of money should not be left in the keeping of the students.
5. Any injury done to the walls or furniture of the College will be charged to the offender's account.
6. Drafts, cheques, money-orders, etc., should be made payable at par to "Loyola College" and addressed to The Bursar, Loyola College, Montreal.

N.B.—Non-residents of Canada or the United States:
Board and lodging (without laundry) $700.00
Tuition—The above quoted fee for the chosen course plus an additional fee of $50.00.

FEES ARE PAYABLE QUARTERLY IN ADVANCE: AT REGISTRATION, NOVEMBER 15th, JANUARY 15th AND MARCH 15th.